Areas Covered

Before Reading This Manual

This section explains the notes for your safety and conventions used in this manual. Make sure to read this section.

Chapter 1   Overview

This chapter explains component names and basic operations of this server, as well as an overview of the software provided with this server. In addition, the workflow, from placing the server to starting the operation, is also described.

Chapter 2   Checking before OS Installation

This chapter explains the preparation on the server and cautions necessary before OS installation. Please read this chapter before starting installation.

Chapter 3   OS Installation Using ServerStart

This chapter explains how to install the OS in the server using ServerStart.

Chapter 4   Manual OS Installation

This chapter explains how to install the OS without using ServerStart.

Chapter 5   Operations after OS Installation

This chapter explains the operations to be performed after OS installation. Be sure to perform those operations before operating the server.

Chapter 6   High Reliability Tools

For stable PRIMERGY server operations, we recommend that high reliability tools be installed. This chapter explains the installation and necessary settings of high reliability tools.

Chapter 7   Installing Internal Options

This chapter explains how to install and remove the various internal options in this server.

Chapter 8   Hardware Configuration/Utilities

This chapter explains how to make the environment settings necessary to operate the server.

Chapter 9   Operation and Maintenance

This chapter explains the operations necessary after starting to use this server as well as daily care and maintenance.

Appendix

This appendix explains the specifications for the server and internal options. It also covers how to recycle the products.

Before Reading This Manual

■ Trademarks

Remarks

■ Warning Descriptions

Various symbols are used throughout this manual. These are used to emphasize important points for your safety and that of others. The following are the symbols and their meanings.

⚠WARNING	Ignoring this symbol could be potentially lethal.
⚠CAUTION	Ignoring this symbol may lead to physical injury and/or damage the server or hardware options.

The following symbols are used to indicate the type of warning or caution being described.

⚠	The triangle mark emphasizes the urgency of the WARNING and CAUTION. Details are detailed inside the triangle and above it.
🚫	A barred circle (🚫) warns against certain actions (Do Not). These actions are detailed inside the circle and above it.
❶	A black circle indicates actions that must be taken. These actions are detailed inside the black circle and above it.

■ Symbols

Symbols used in this manual have the following meanings.

IMPORTANT	These sections explain prohibited actions and points to note when using this device. Make sure to read these sections.
POINT	These sections explain information needed to operate the hardware and software properly. Make sure to read these sections.
→	This mark indicates reference pages or manuals.

■ Key Descriptions / Operations

Keys are represented throughout this manual in the following manner.

E.g.: [Ctrl] key, [Enter] key, [→] key, etc.

The following indicate pressing several keys at once.

E.g.: [Ctrl] + [F3] key, [Shift] + [↑] key, etc.

■ Entering Commands (Keys)

Command entries are displayed in the following way.

```
diskcopy a: a:
         ↑  ↑
```

- In the areas of the "↑" mark, press the [Space] key once.
- When the operating system is Windows, commands are not case sensitive.
- CD-ROM drive names are shown as [CD-ROM drive]. Enter your drive name according to your environment.
  [CD-ROM drive]:\setup.exe

■ Screen Shots and Figures

Screen shots and figures are used as visual aids throughout this manual. Windows, screens, and file names may vary depending on the server. Figures in this manual may not show cables that are actually connected for convenience of explanation.

■ Consecutive Operations

Consecutive operations are described by connecting them with arrows (→).

Example: Procedure of clicking the [Start] button, pointing to [Programs], and clicking [Accessories]

↓

Click [Start] → [Programs] → [Accessories].

■ Abbreviations

The following expressions and abbreviations are used throughout this manual.
This document may contain information on other operating systems.

table: Abbreviations of Product Names

Product name	Expressions and abbreviations	
PRIMERGY RX200 S2	This server or the server	
Microsot® Windows Server™ 2003, Standard Edition	Windows Server 2003, Standard Edition, or Windows Server 2003	Windows
Microsoft® Windows Server™ 2003, Enterprise Edition	Windows Server 2003, Enterprise Edition, or Windows Server 2003	
Microsoft® Windows® 2000 Server	Windows 2000 Server	
Microsoft® Windows® 2000 Advanced Server	Windows 2000 Advanced Server, or Windows 2000 Server	
Microsoft® Windows® Preinstallation Environment	Windows PE	
Microsoft® Windows® XP Professional	Windows XP Professional	
Microsoft® Windows® 2000 Professional	Windows 2000 Professional	
Microsoft® Windows NT® Workstation Operating System 4.0	Windows NT	
Red Hat® Enterprise Linux® AS	Red Hat Enterprise Linux AS	Linux
Red Hat® Enterprise Linux® ES	Red Hat Enterprise Linux ES	

■ Server Types

The following expressions and abbreviations are used for server types throughout this manual.

table: Server Types

Type	Expressions and abbreviations
Servers without an internal hard disk unit	Diskless type

Reference Information

■ Software Manuals

Software Manual contains other reference information and cautions for ServerStart not described in this manual.

Please read it before using ServerStart.

Software Manual is contained as a "README.TXT" file in the root directory on the ServerStart CD-ROM.

Use a text editor to read it.

■ Latest Information about Software Provided with This Server

For the latest information regarding ServerStart and other software provided with this server, refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

Warning and Caution Labels

Warning and caution labels are found on the server.

Do not remove or stain these labels.

Contents

Chapter 1 Overview

Chapter 4 Manual OS Installation

Chapter 5   Operations after OS Installation

Chapter 6   High Reliability Tools

Chapter 7   Installing Internal Options

Chapter 8 Hardware Configuration/Utilities

Chapter 9 Operation and Maintenance

Appendix

Chapter 1
Overview

This chapter explains component names and basic operations of this server, as well as an overview of the software provided with this server.In addition, the workflow, from placing the server to starting the operation, is also described.

1.1 RX200 S2

This server has the following features.

■ High Reliability

● Advanced Memory Protection Function

The server supports the Chipkill function using PC2-3200-compliant memory (DDR2 400 SDRAM) to enable data recovery in the event of a memory error.

● Disk Array System Configuration

A disk array system (RAID1) can be configured using the onboard SCSI array controller.

● Redundant Function

The hard disk units, power supply units, and fans (only CPU/power supply fans) support the redundant function.
A failed hard disk unit in a disk array system can be replaced or repaired without turning off the server and peripheral devices (a hot plug is supported).
Adding an optional power supply unit enables the redundant function.

● Hardware and Software Designed for Data Security

The locks on the rack and security (password) setting in the BIOS Setup Utility protect hardware and data assets in the server against theft, ensuring data security with high reliability.

● Proactive Fan Function

When a fan fails or the ambient temperature rises, the system fan speed is increased automatically to avoid increase in temperature in the server, ensuring stable server operation.

● High Reliability Tools

High reliability tools offer stable system operation. For information about high reliability tools, refer to "1.2.2 High Reliability Tools" (→pg.19).

■ High-speed Processing

● 64-bit Intel® Xeon™ Processors

The server can have up to two 64-bit Intel® Xeon™ processors for high-speed data processing (one processor in standard servers).
The server supports the Hyper-Threading function that uses one physical CPU as two logical CPUs, providing high-efficiency and high-speed processing.

● PCI-X

The server uses PCI-X buses with a maximum data transfer speed of 1066MB/sec.

● Ultra320 SCSI (Onboard SCSI Array Controller)

The onboard SCSI array controller supports the Ultra320 SCSI interface that provides a maximum data transfer speed of 320MB/sec, ensuring high-speed data transfer.

■ Compact Design and Scalability

● Space Saving 1U Design

This server is slim, with a thickness of 1U. The server, display device, keyboard, and external SCSI options fit in a 19-inch rack, which saves the installation space.

● Maximum Memory Size of 16GB

In addition to the preinstalled 1GB memory, the system has four memory banks for supporting up to 16GB memory.

● Maximum Hard Disk Size of 600GB

Up to two internal hard disk units can be installed in the 3.5-inch storage bays. The hard disk size can be increased up to 600GB.

● Internal CD-ROM Drive Unit

One optional internal CD-ROM drive unit can be installed.

● Two PCI Slots

The server has two PCI slots including a 64-bit 133MHz PCI-X slot.

1

Overview

1.2 Supplied Software

ServerStart for supporting setup and high reliability tools for avoiding problems during server operation are supplied with this server.

1.2.1 Setup Support Tool - ServerStart

ServerStart is a setup support tool that helps to install PRIMERGY.

It offers easy server installation and proper installation of recommended drivers.

■ Installing ServerStart

ServerStart facilitates server setup procedures.

Installing ServerStart

Not using ServerStart

- Complicated hardware configuration (RAID configuration, etc.)
- User definition, access privileges, network settings
- It is necessary to input successively for installation, resulting in more mistakes and longer time

Example:
Operations such as setting IP address, creating users, and registering computer name are required

Install & Setup
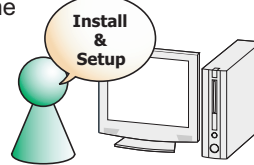
Using ServerStart

- Automatic RAID configuration is possible
- Auto installation of recommended drivers (SCSI, LAN, etc.) enables high reliable installation
- High reliability tool can be installed automatically *1

Example:
Operations during OS installation is automated *2

Auto setup
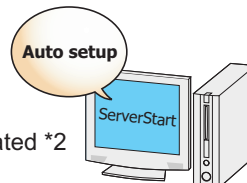
ServerStart

*1 High reliability tools are software with comprehensive strength for stable system operation of the server management

*2 Some input (License window, etc.) and media repositioning are excluded

● Configuration File (SerStartBatch.ini)

A configuration file stores the server setup and client information configured in ServerStart. To create a configuration file, use the ServerStart floppy disk supplied with this server. Store only one file on each floppy disk. Do not set the ServerStart floppy disk to the write-protected state.

You can use any name for the configuration file. However, the file must be installed in the server as "SerStartBatch.ini". When installing the file, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

Start up ServerStart, insert the ServerStart floppy disk containing "SerStartBatch.ini", and click [Start] to install the server.

■ Intuitive User Interface

The intuitive user interface allows you to easily set the necessary information.

● Main Window

When ServerStart is started, the following window appears.

The window and tool bar differ depending on the mode.

1

Overview
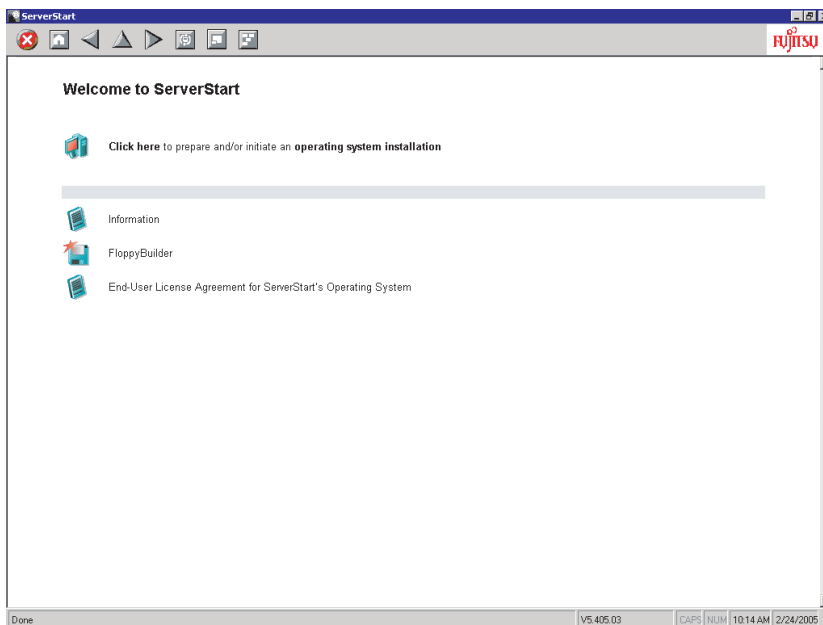
● **Tool Bar**

In Guided Mode / Expert Mode

Ends ServerStart.   Brings you to the previous page.   Brings you to the next page.   Changes the size of icons.

Brings you to the main screen.   Brings you up one tier.   Resets the status function.   ON/OFF of the tree display is set. It doesn't support, and never click.
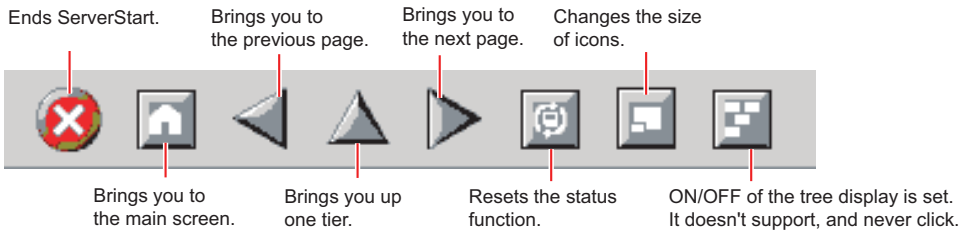
🔧 IMPORTANT

▸ While the wizard is running, do not click the ◁ △ ▷ icons on the tool bar to move to the previous or next window. To move to a different window, click the [Previous], [Up], or [Next] button at the bottom of the wizard window.

● **Wizard Window**

Clicking a wizard displays a wizard window.

Set items in the wizard window. To move to a step in the next wizard window, click the operation button at the bottom of the window. Clicking [help] displays a tip for setting the item.
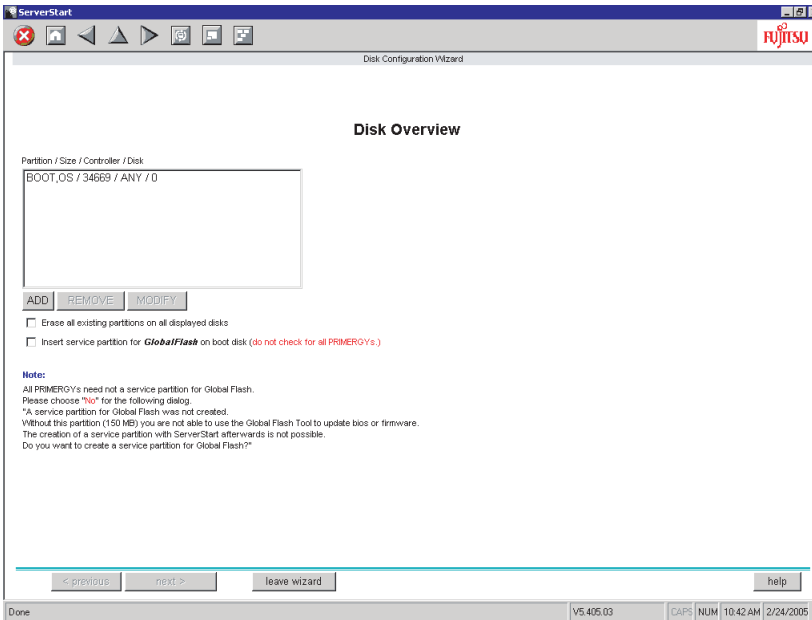
■ **Network Configuration**

ServerStart can configure a network at server installation.

For details on available network patterns, refer to "Using ServerStart to configure the Network".

1

Overview

■ Automatic Driver Installation

Recommended drivers for automatically recognized expansion cards are installed with the server. This prevents possible mistakes in driver installation, such as installation of an older version or drivers which were not supplied with this server.

■ Automatic RAID Configuration

When a disk array is configured using the onboard SCSI array controller, specify the RAID type and the number of hard disk units before starting installation. A disk array can be configured without starting the RAID utility.

■ Remote Installation

ServerStart can store resources necessary for installation, such as the OS and Service Pack, a different server on the network and install the OS via the network. This method is used when the server does not have a CD-ROM or floppy disk drive.
SystemcastWizard Professional (optional) is a useful tool for extracting a lot of files in a short time.

1.2.2 High Reliability Tools

High reliability tools are a comprehensively useful set of software for stable system operations of the server. The following tools have respective roles to manage normal operations or recovery from errors:
• Server Monitoring Tools
• System Diagnosis Support Tools
• LAN Driver Advanced Setup Tools

■ Server Monitoring Tools

The server monitoring tools monitor the hardware status on behalf of the administrator and notify him/her in the event of an error.

● Detecting a Server Failure Early [ServerView]

ServerView is software that monitors whether the server hardware is in a normal state to protect important server resources. When using ServerView, the server hardware is monitored all the time. If an error that could cause trouble is detected, the administrator is notified in real-time. This allows the server administrator to remove a system error early and avoid trouble.

● Detecting a Disk Failure Early [RAID Management Tool]

RAID Management Tool is software that monitors the disk array. RAID Management Tool runs as a Windows Server 2003/Windows 2000 Server system service. When an event occurs, it leaves an event log in the event viewer's application logs. At the same time, a pop-up window indicates a hard disk failure, rebuild status, etc.

■ System Diagnosis Support Tools

The system diagnosis support tool is for supporting system diagnosis during normal operation or in the event of trouble.

● Solving Problems Early [DSNAP]

DSNAP is a command line utility that collects all the failure investigation information. System file configuration information, major registry settings, and event logs can be collected easily from the command line.

DSNAP is used to allow maintenance personnel to understand your system software configuration and settings correctly and ensure smooth investigations when a problem occurs in your Windows Server 2003/Windows 2000 Server system. Pass the information along with memory dumps to your maintenance personnel.

■ LAN Driver Advanced Setup Tools

LAN Driver Advanced Setup Tool sets details on the LAN, including the use of the Teaming function and VLAN configuration.

● Intel® PROSet

Intel® PROSet is a tool for setting details for using the Teaming function or configuring a VLAN.

1.2.3 Installing High Reliability Tools

You can install all high reliability tools provided with PRIMERGY by specifying them in "Application Wizard" when the OS is installed is initiated with ServerStart.

After manual OS installation, high reliability tools can be installed all at once, just as they are installed during OS installation with ServerStart.

In each case, the following high reliability tools are installed.

table: High reliability tool installation

High Reliability Tools	Batch installation with ServerStart
RAID Management Tool	A [*1]
ServerView	S
DSNAP	S
Intel® PROSet	A

A: Installed in any case
S: Installed if selected
*1: Installed when an onboard SCSI array controller is used for an array configuration or a RAID card is installed

IMPORTANT

▶ Linux does not support batch installation with ServerStart.
▶ ServerView must be configured after installation even when the high reliability tools have been installed at once with ServerStart. Refer to "Chapter 6 High Reliability Tools" (→pg.159).

1.3 Component Names and Functions

This section explains the component names and functions of the server.

1.3.1 Server (Front View)
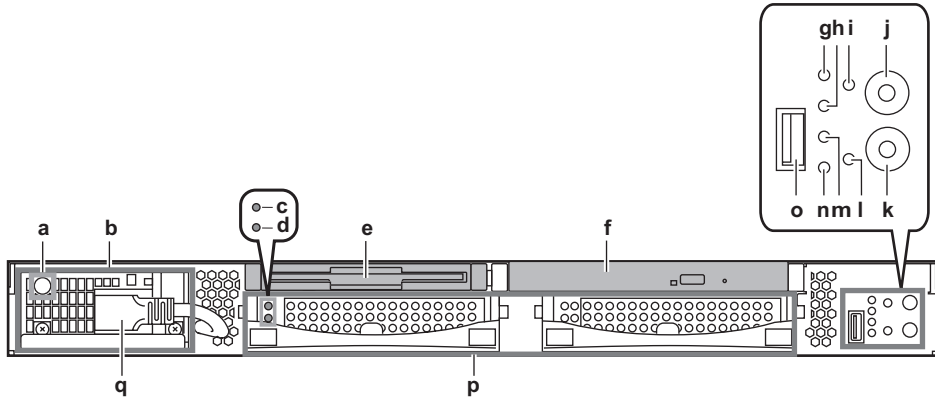
a Power supply unit LED

table: Power supply unit status

LED status	Power supply unit status
Lights green	The unit is operating normally.
Lights amber	An AC power supply is connected or an error is detected in the power supply unit.

b Power supply unit (optional)

c Hard disk access LED (◎)

This LED lights green when data is being written to or read from the hard disk.

d Hard disk failure LED (⊗)

This LED lights or blinks when the internal hard disks configure an array. It does not light or blink when the OS is not running (during POST).

table: Hard disk status

LED status	Hard disk status
Off	In normal mode or hot spare mode
Lights amber	Error detected in a hard disk
Blinks amber	During initialization or rebuilding

e Floppy disk drive

Writes/reads data to/from a floppy disk.

f CD-ROM drive (optional)

Reads data or programs from a CD-ROM.

g System identification LED (ID)

This LED is used for maintenance. When pressing this button, the front and rear system identification LEDs are lit blue so that the locations of devices being maintained can be determined.

Also, the [System Identification LED Display] button of ServerView can be used to light them.

h Hard disk access display LED (⊙)

This LED lights green when data is being written to or read from the hard disk. It also lights when the server is accessing the CD-ROM.

i Reset switch (RST)

Pressing this switch resets and restarts the system.

IMPORTANT

▶ When the reset switch is pressed, all unsaved data will be lost. Save the data before resetting the system.

j System identification LED button (**ID**)

When pressing this button, the front and rear system identification LEDs are lit blue so that the locations of devices being maintained can be determined.

k Power switch (⏻)

Press this switch to turn the server on.

IMPORTANT

▶ Do not turn the server off when the hard disk access LED is blinking.
Data in the hard disk may be damaged.

l Maintenance switch (**NMI**)

This switch is used only by maintenance personnel. Do not touch this.

m Front maintenance LED (⚠)

When the ServerView is installed, this LED lights in amber during the logical drive initialization/rebuild of the onboard disk array controller. This indicates a normal operation.

This LED also lights or blinks in amber when an error is detected in the server components. If it lights or blinks except for drive initialization or rebuild, contact an office listed in the "Contact Information" of the "Start Guide".

n Power status LED (⚙)

This LED lights as follows depending on the server power supply status.

table: Power Supply Status

LED status	Power supply status
Off	Power not supplied (power off)
Lights amber	In normal mode (standby mode)
Lights green	In normal mode (operating mode)

o USB connector (⟿)

Connects peripheral equipment conforming to the USB standard (2.0 or 1.1).

p 3.5-inch storage bay

Contains an internal hard disk unit.

q Inlet

AC power cables are plugged in.

1.3.2 Server (Rear View)
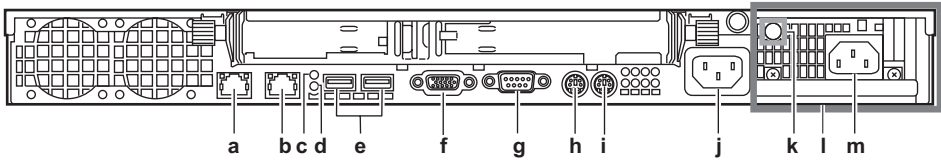
a LAN connector A (🖧 A)

An Unshielded Twisted Pair (UTP) cable is plugged in. For 1000Mbps connection, a cable conforming to category 5 enhanced is required.

The meanings of the two LED are shown in the table below.

table: LAN Status

LED location	LED status	Connection status
Left	Lights green	Link is being established.
	Blinks green	Data is being transferred.
	Off	Link is not established.
Right	Lights amber	Connection is established at 1000Mbps.
	Lights green	Connection is established at 100Mbps
	Off	Connection is established at 10Mbps or the LAN is not connected.

The left LED may light green when no LAN cable is connected. This is not a failure. When a LAN cable is connected, the LED operates as shown in the table above. If the LED does not light or blink though a LAN cable is connected, the server may have a failure.

b LAN connector B (🖧 B)

This is a PCI connector. The applicable cable and meanings of the LEDs are the same as those for LAN connector A.

c Rear maintenance LED (⚠)

This LED lights amber when the server is not turned on (standby mode). When the server is turned on and the ServerView is installed, this LED lights amber during the logical drive initialization/rebuild of the onboard disk array controller. When an error is detected in the server components while the server is turned on, it also lights or blinks amber.

If this LED lights or blinks except for drive initialization or rebuild while the server is turned on, contact an office listed in the "Contact Information" section of the "Start Guide".

d System identification LED (**ID**)

This LED is used for maintenance. When pressing this button, the front and rear system identification LEDs are lit blue so that the locations of devices being maintained can be determined. Also, the [System Identification LED Display] button of ServerView can be used to light them.

e USB connector (�⟩)

Connects peripheral equipment conforming to the USB standard (2.0 or 1.1).

f Display connector (15 pin) (▢)

A display cable is plugged in.

g Serial port (9 pin) (🔲)

Cables of peripheral equipment conforming to the RS-232C standard such as modems are plugged in.

h Keyboard connector (6 pin) (⌨)

A keyboard is plugged in.

i Mouse connector (6 pin) (🖰)

j Inlet (for optional power supply unit)

AC power cables are plugged in.

k Power supply unit LED

The LED indicates the power supply unit status.The following shows the meanings of the LED.

table: Power supply unit status

LED status	Power supply unit status
Lights green	The unit is operating normally.
Lights amber	An AC power supply is connected or an error is detected in the power supply unit.

l Power supply unit (standard)

One power supply unit is installed by default. Up to two units can be installed. Adding a power supply unit enables the redundant power supply function.

m Inlet

AC power cables are plugged in.

1.3.3 Server (Internal)
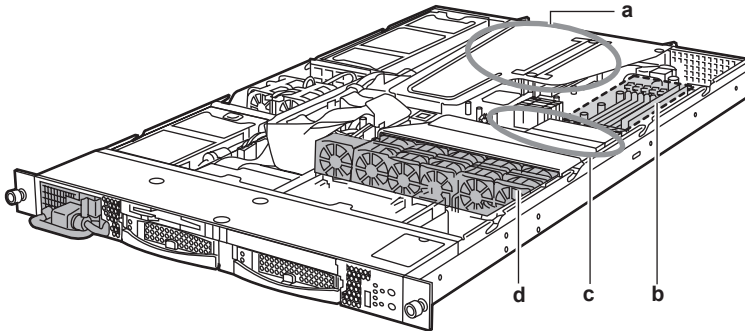
a PCI slot

Contains extension cards that enhance the server functions. Expansion cards with the PCI bus interface can be installed in the PCI slots.

b Memory slot

Contains memory.

c CPU socket

Install the CPU. One CPU is installed by default. Up to two CPUs can be installed.

d System fan

Contact an listed in the "Contact Information" of the "Start Guide" for the system fan replacement.

1.3.4 Baseboard
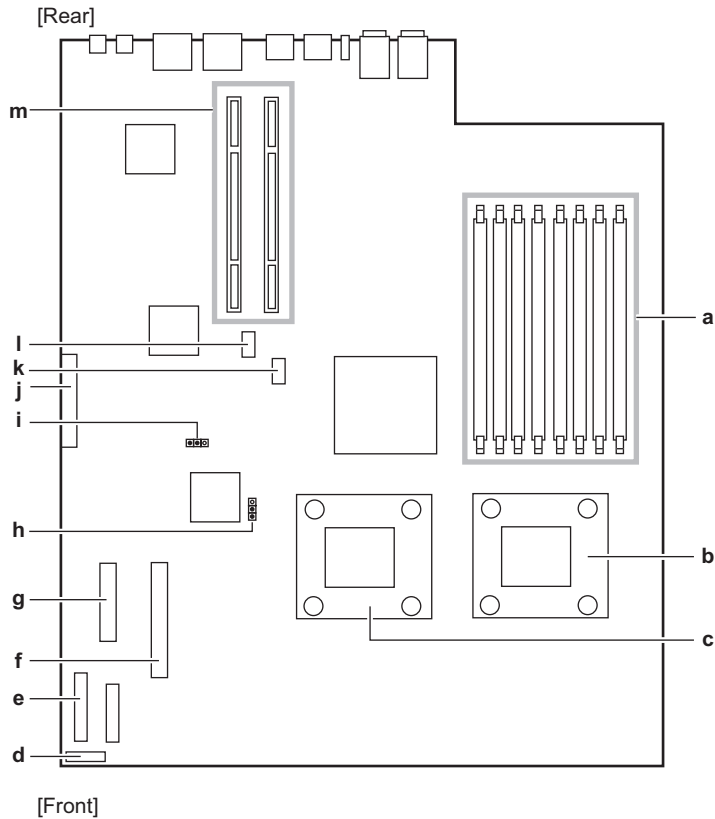
a Memory slot

Contains memory. One memory bank consists of Slots A and B on this server. Be sure to install a pair of memory modules.

b CPU socket 0

c CPU socket 1

Install the CPU.

d Fan board connector

e Power supply connector

f IDE connector for CD-ROM drive

An IDE cable for the optional CD-ROM drive is plugged in.

g Floppy disk drive connector

h JP7

i JP9

j SCSI connector

k Internal power connector

An internal power supply cable is plugged in when a remote service board is installed.For more details, refer to "● Remote Service Board" (→pg.182) in "7.5.2 Installable Expansion Cards and Notes".

l Server control connector

A server control cable is plugged in when a remote service board is installed. For more details, refer to "● Remote Service Board" (→pg.182) in "7.5.2 Installable Expansion Cards and Notes".

m Card locking frame connector

An expansion card locking frame is installed.

1

Overview

1.4 Standard Operations

This section explains standard server operations, including how to turn the server on/ off and to insert/remove a floppy disk.

1.4.1 Opening the Rack Door

This section explains how to open the front and rear doors of the 40U standard rack.

Refer to the manual included with the rack for procedures on opening other rack doors.

■ Opening the Front Door

1 Pull the rack handle up.

When the rack is locked, turn the rack key to unlock.

→"9.4.1 Hardware Security" (pg.271)

2 Turn the handle in the direction of the arrow and pull it forward.

Turn and then pull
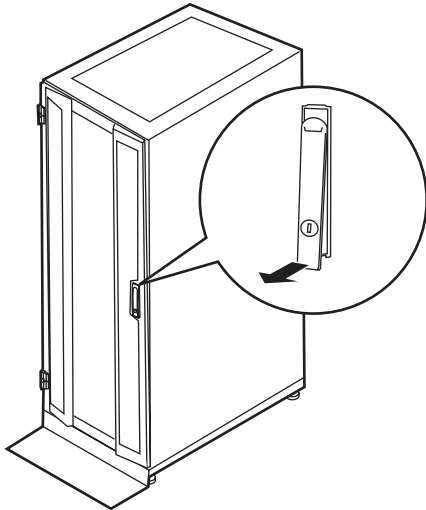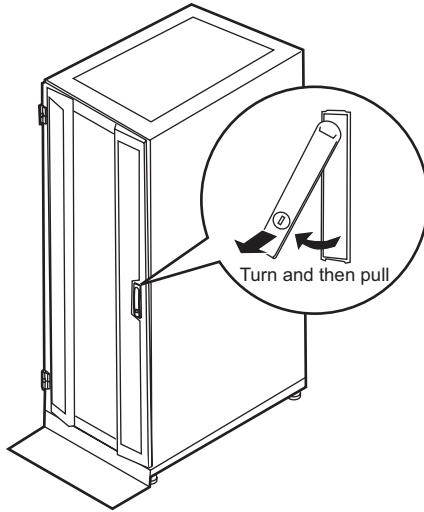
■ Opening the Rear Door

1 Turn the rack key and pull the rack handle up.

2 Turn the handle in the direction of the arrow and pull it forward.

Turn and then pull
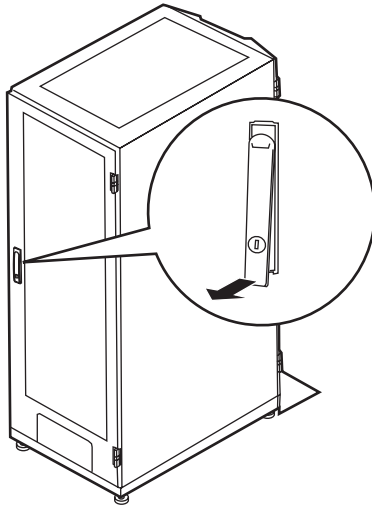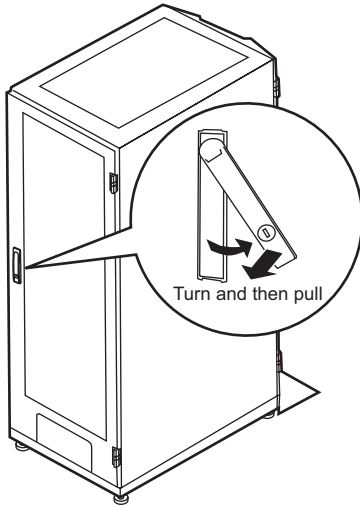
POINT

▶ Unless you are inserting/removing media or turning the power on/off, keep the rack door closed. Doing so blocks electric waves from cell phones, etc.

▶ Do not lose the keys. If the key is lost, contact an office listed in the "Contact Information" of the "Start Guide".

1.4.2 Turning On the Server

⚠ CAUTION 🚫

• Do not move, strike, or shake the server when it is turned on. This can damage the hard disk in the server and cause data loss.

❗

• Turn the server on when the temperature is in its operating environment range (10-35°C). For details on the operating environment, refer to "Start Guide" and "Safety Precautions".
When operating the device outside of this operating environment, the server may operate improperly, damage data etc.
Furthermore, Fujitsu cannot be held responsible for any related damage, malfunction, or loss of data, etc.

⚠

• The fans rotate at high speed immediately after the server is turned on, but this is not defective. When the temperature is in the server's operating environment range (10-35°C), they start to rotate at normal speed later.

❗

• Be sure to wait for 10 seconds or longer after shutdown before turning the server on.

1 Open the rack door.

→"1.4.1 Opening the Rack Door" (pg.28)

2 Make sure that the floppy disk drive and CD-ROM drives are empty.

3 Turn on the display and peripheral devices.

4 Press the power switch on the front of the server.

The power switch lights green. When the power is turned on, the server performs Power On Self Tests (POST). If any abnormalities are detected by POST, error messages are displayed.

→"9.2.2 Error Messages" (pg.255)
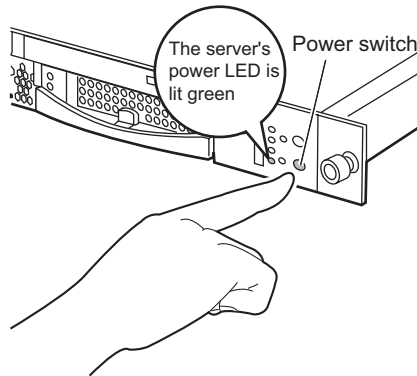
IMPORTANT

▶ After connecting the power cable, wait for 10 seconds or more before pressing the power switch. The power may not be turned on properly if the power switch is pressed immediately after the power cable is connected (the green power LED turns amber). If this occurs, press the power switch again.
If this occurs, the following system event log can be found with Server Management Tools. However, this is not an error.
MMM-DD-YYYY HH:MM:SS: 050301FFFF-24 Overcurrent S=LimitExceeded-Asserted
MMM-DD-YYYY HH:MM:SS: 050300FFFF-24 Overcurrent S=LimitNotExceeded-Asserted

POINT

▶ The time to turn on/off the server can be set with the ASR setting (on the [Power On/Off] tab) using ServerView supplied with this server.
For details, refer to "3.2 Settings for Server Monitoring" in "ServerView User's Guide" on the PRIMERGY Document & Tool CD (Disc 2).

1.4.3 Turning Off the Server

⚠️**WARNING**

- In the event of smoke or sparks, immediately unplug the electric cord. Failure to do so may lead to a fire or electrocution.

⚠️**CAUTION**

- When turning off the server, be sure to follow the procedures described in this section. Data can be lost if these procedures are not followed correctly.

- Be sure to wait for 10 seconds or longer after shutdown before turning the server on.
  Otherwise, the server may not start up properly.

1 Make sure that the floppy disk drive and CD-ROM drives are empty.

2 Shut down the OS.

In the following cases, the server is turned off after the OS is shut down (Step 3 is not necessary).

- Windows OS
- When ServerView is installed

In other cases, shut down the OS and make sure that the floppy disk and hard disk access LEDs are off.

3 Press the power switch on the front of the server.

The power switch lights amber.
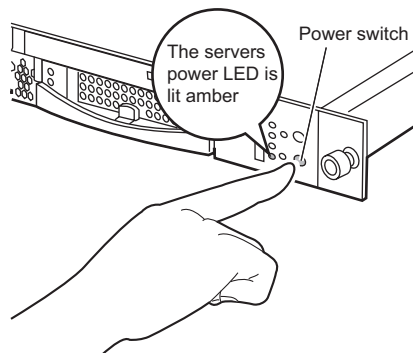
4 Turn off the display and peripheral devices.

POINT

▶ The time to turn on/off the server can be set with the ASR setting (on the [Power On/Off] tab) using ServerView supplied with this server.
For details, refer to "3.2 Settings for Server Monitoring" in "ServerView User's Guide" on the PRIMERGY Document & Tool CD (Disc 2).

■ **Cautions for Turning the Power On/Off (for a Windows OS)**

- For Windows Server 2003

  "Do Nothing", "Prompt Input", "Standby", "Hibernation", or "Shutdown" can be specified as the operating mode of the power switch in the OS settings (normally, "Shutdown" is specified).

- For Windows 2000 Server

  "Standby", "Hibernation", or "Power Off" can be specified as the operating mode of the power switch in the OS settings (normally, "Power Off" is specified).

On this server, functions corresponding to "Standby" and "Hibernation" are supported as BIOS and hardware functions. However, some drivers and software installed in the server do not support these functions. For this reason, functions corresponding to "Standby" and "Hibernation" are unavailable on this server.

When the operating mode is set to "Standby" or "Hibernation", the system may operate improperly or hard disk data may be corrupted.

For details about operating mode settings, refer to the manual supplied with the OS.

1.4.4 Inserting and Ejecting a Floppy Disk

■ **Cautions**

When using a floppy disk, note the following points.

- Do not expose the disk to any fluids.
- Do not open the shutter of the floppy disk and touch the disk surface.
- Do not bend the floppy disk or place heavy objects on it.
- Do not expose the floppy disk to strong magnetic fields.
- Do not drop the floppy disk on hard surfaces.
- Do not store the disk in extremely hot or cold conditions.
- Do not put layers of labels on the floppy disk.
- Keep the disk away from condensation or water droplets.

■ **Inserting the Floppy Disk**

1 Insert the floppy disk into the floppy disk drive from the shutter side.

When clicking into place, the floppy disk eject button pops out.
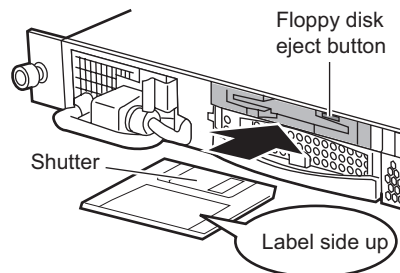
■ Ejecting the Floppy Disk

1 Make sure that the floppy disk access LED is off. Press the floppy disk eject button.

The floppy disk is ejected.
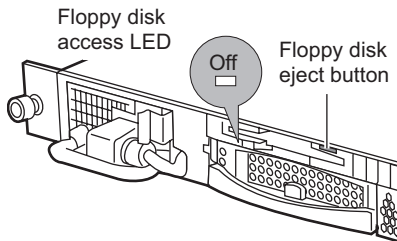
⚠CAUTION 🚫 • Do not eject the floppy disk while the floppy disk access LED is on. The data stored on the floppy disk may be damaged.

1.4.5 Inserting and Ejecting a CD-ROM

This section explains how to insert and eject a CD-ROM.

■ Cautions for Handling CD-ROM Drive

- Use the drive in a dry place with low airborne dust levels. Entry of water, a paper clip, or other liquids or metal objects can cause electric shock or failures.
- Do not use the drive in a place exposed to shocks or vibration.
- Do not insert any object other than the specified CD-ROMs.
- Do not pull or push the CD-ROM tray forcibly.
- Do not disassemble the CD-ROM drive.
- Clean the CD-ROM tray before use. Use a dry, soft cloth for cleaning.
- When the CD-ROM drive is not used for a prolonged period, eject the CD-ROM to prevent accidents. To avoid dust or particles, keep the CD-ROM tray closed (in a loaded position).
- This server supports CD-ROMs with the following logo. Do not use CD-ROMs without the logo. Doing so may cause failures.

■ Cautions for Handling CD-ROMs

- When removing the disk from the case, pull the disk up while pressing the center holder of the case as shown in the figure below.
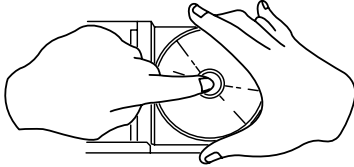
- Hold the CR-ROM on its edge to avoid contact with the disk surface.
- Do not contaminate the CD-ROM surface with fingerprints, oil, or dust. If the disk is dirty, wipe it from the center to the edge with a dry, soft cloth. Do not use benzine, thinner, water, record sprays, antistatics, or silicone clothes.
- Be careful not to scratch the CD-ROM surface.
- Avoid heat.
- Do not bend the floppy disk or place heavy objects on it.
- Do not use a ball-point pen or pencil on the label (printed) side.
- Do not apply stickers to the label side. Abnormal vibration can occur due to eccentricity.
- When the CD-ROM is moved from a cold place into a warm place, dew condensation may occur, resulting in data read errors. If this is the case, wipe droplets away with a dry, soft cloth and let the unit dry naturally. Do not use a hair dryer.
- To avoid dust, scratches, or deformation, store CD-ROMs in the case whenever not in use.
- Do not store CD-ROMs in areas of high temperature exposed to direct sunlight for many hours or near heating appliances.

■ Inserting the CD-ROM

1 Make sure the server is turned on and press the CD-ROM eject button.

The CD-ROM tray comes out a little.

CD-ROM eject button
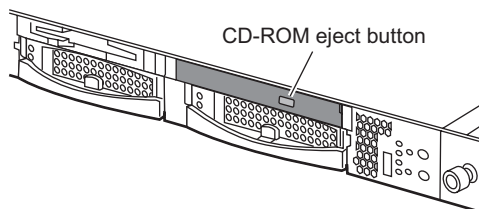
2 Pull the CD-ROM tray out.

CD-ROM tray

1

Overview
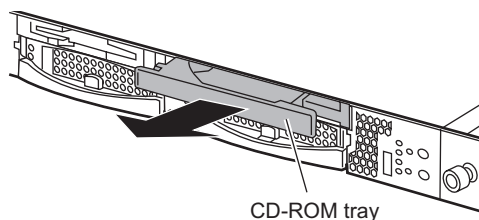
3 Place the CD-ROM at the center of the tray.

While supporting the CD-ROM tray, push the tray until it clicks into position.

Label side up

CD-ROM tray
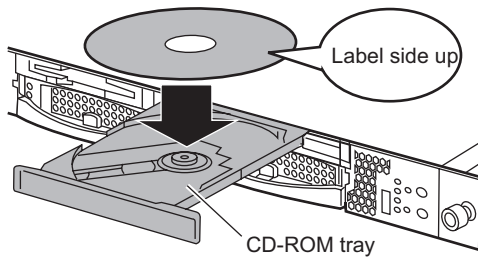
IMPORTANT

▶ If the CD-ROM is placed improperly when the tray is pushed into the unit, the CD-ROM or the drive may be damaged.

▶ Be careful not to touch the lens of the CD-ROM drive.

4 Move the tray back.

Push the tray gently until it clicks into position.
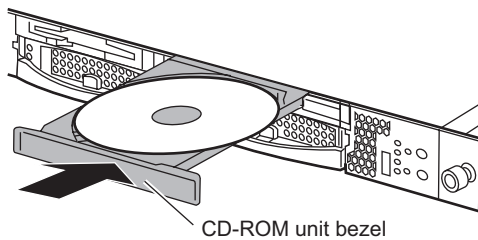
CD-ROM unit bezel

POINT

▶ Push the center of the CD-ROM unit bezel gently until the tray clicks into position.

■ Ejecting the CD-ROM

To eject the CD-ROM, press the CD-ROM eject button in the same way as steps 1 to 2 in "■ Inserting the CD-ROM" (→pg.35).

1.5 Workflow

Use the following workflow from server installation to start of operation.

Installing the server

Referring to "Safety Precautions" and "Start Guide", install the server to a suitable place.

▼

Preparing the server

- Install internal options
- Set hardware
Referring to "2.1 Preparation on the server", "Chapter 7 Installing Internal Options", and "Chapter 8 Configuring Hardware and Utilities", prepare the server.

▼

Selecting the installation method

Referring to "2.2 Selecting the Installation Method", decide what installation method to use. ServerStart, a software that enables everything from OS installation/setup to the installation of high reliability tools to be performed in one operation, comes with this server. It is recommended that ServerStart is used to perform installation.

▼

Checking precautions on installation

Before installing the OS, check the precautions on installation by referring to "2.3 Precautions on Installation".

▼   OS installation   ▼

Using ServerStart

Referring to "Chapter 3 OS Installation Using ServerStart", perform OS installation.

Manual installation

Referring to "Chapter 4 Manual OS Installation", perform OS installation.

▼   ▼

Install internal options

Referring to "Chapter 7 Installing Internal Options", install the internal options.

▼

Procedures before operation

Before operating the server, refer to "Chapter 5 Operations after OS installation".

▼

High reliability tool installation

When the OS is installed manually, it is necessary to install high reliability tools. ServerView requires settings before server operation. For installation method and details about each high reliability tool, refer to "Chapter 6 High Reliability Tools".

▼

Start operations

Chapter 2
Checking before OS Installation

This chapter explains the preparation on the
server and cautions necessary before OS
installation. Please read this chapter before
starting installation.

2.1 Preparation on the Server

Before starting installation, install internal options to the server and perform necessary hardware settings.

2.1.1 Installing Internal Options

Internal options are classified into those that must be installed before the OS installation and those that must be installed after the OS installation.
For installation procedures, refer to "Chapter 7 Installing Internal Options" (→pg.163).

● Internal options that must be Installed before the OS installation

- Memory modules
- CPU
- Expansion cards

● Internal options that must be Installed after the OS installation

- Optional SCSI devices
- Internal hard disk units where the Operating System is not installed

IMPORTANT

▸ If an internal option device that must be installed after the OS installation has been already installed, remove the device, install the OS, then reinstall the device.

■ Cautions for Installing an Expansion Card

When using an expansion card, read the notes on the expansion card.

■ Cautions for Installing an Optional SCSI Device

When adding an optional SCSI device (DAT, etc.) using a SCSI card, connect it after installing the OS. Connecting it before OS installation may result in improper drive letter assignment.

■ Cautions for Installing a Memory Module

This server supports up to 16GB of memory. However, the maximum installable size varies depending on the OS. Furthermore, since the server uses part of the memory as PCI resources, the maximum available size is limited.

The following shows the maximum installable size and the maximum available size.

table: Maximum Installable Size and Maximum Available Size

OS	Installed memory size	Available memory size
Windows 2000 Server [*1] Windows Server 2003, Standard Edition [*1]	3.0GB or smaller	Same as the installed memory size
	4.0GB	Installed memory size - (0.63GB) [*2]
Windows 2000 Advanced Server Windows Server 2003, Enterprise Edition	3.0GB or smaller	Same as the installed memory size
	4.0 to 8.0GB	Installed memory size - (0.63GB) [*2]

* 1: Windows 2000 Server and Windows Server 2003, Standard Edition support up to 4GB of memory.
* 2: Because 0.63GB of memory is used as PCI resources, the available memory size varies depending on the installed card.

● Cautions Applicable When the OS is Windows Server 2003, Enterprise Edition or Windows 2000 Advanced Server

When installing 4GB or more of memory in a server operating with Windows 2000 Advanced Server or Windows Server 2003, Enterprise Edition, the /PAE option in the "Boot.ini" file must be described. For the procedure for editing the "Boot.ini" file, refer to the manual supplied with the OS.

IMPORTANT

▶ The "Boot.ini" file is an important file for the system. If the file is edited improperly, the system may not start up. Edit it carefully.

"Boot.ini" file description example

```
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)?WINNT="Microsoft
Windows 2000 Advanced Server" /PAE /fastdetect
```

■ LAN Cable

Be sure to connect the LAN cable when the server is not connected to the Internet. If the OS is installed or applications are automatically installed without connecting the LAN cable to the LAN card, an error may be recorded in the event viewer after setup completes.

IMPORTANT

▶ Connecting to the Internet during setup can cause security problems. Do not connect to the Internet until the setup completes.

2.1.2　Hardware Settings

Before starting installation, set necessary hardware, such as the BIOS Setup Utility.

■ BIOS Setup Utility

The BIOS Setup Utility must be set in the following cases. For details on how to set the BIOS Setup Utility, refer to " Hardware Configuration/Utilities" (→pg.205).

● Changing the Boot Drive

To change the boot drive, start up the BIOS Setup Utility, select [Boot Option], and set the boot drive.
→"8.2.4 Boot Options Submenu" (pg.213)

● Performing Remote Installation

Before performing remote installation of ServerStart, use the following procedures to enable network startup (PXE). In addition, check the MAC address.

1　Take the following steps in the BIOS Setup Utility.
1. Start the BIOS Setup Utility.
   →"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.208)
2. Select [Boot Options] and press the [Enter] key.
   The Boot Options menu window appears.
3. Change [MultiBoot for HDs] to [Enabled].
4. Press the [Esc] key and select the [Advanced] menu.
5. From the [PCI Configuration] submenu, select [Ethernet on Board]. Set the [Option ROM Scan] item of [PCI Device, Embedded Ethernet 1(LANCN2)] to [Enabled].
   "■ Ethernet on Board Submenu" (→pg.218)
6. From the [Exit] menu, select [Save Changes & Exit] to exit the BIOS Setup Utility.
7. Start the BIOS Setup Utility again.
8. Select the [Boot Option] submenu from the [Main] menu. Press the [Enter] key.
   The Boot Option submenu window appears.
9. Change the [Boot Sequence] setting as shown below.

```
1 IBA GE Slot 0330 v****
2 CD-ROM
3 Removable Device
4 Hard Drive
```

10. Exit the BIOS Setup Utility and turn the server off.

2　Check the MAC address.
After BIOS setup, start up the server from the network.
The MAC address is displayed as shown below.

```
CLIENT MAC ADDR: XX XX XX XX XX XX
```

The MAC address is required for remote installation. Write it down.

3 Exit the BIOS Setup Utility and turn off the server.

POINT

▶ You can turn the power on/off from a client (via a LAN) by utilizing the Wakeup on LAN (WOL) function. This function is enabled at the time of purchase. For more details, refer to "5.5.5 Turning the Power On/Off via a LAN" (→pg.150).

IMPORTANT

▶ Be sure to install ServerView to control the power supply via a LAN.
When ServerView is not installed, the server is not turned off automatically after OS shutdown.

■ SCSI Setup Utility

The SCSI Setup Utility is used for setting the onboard SCSI array controller of this server.

Check or change settings as necessary before installation. Refer to "8.3 SCSI Setup Utility" (→pg.233).

2

Checking before OS Installation

2.2 Selecting the Installation Method

When installing the OS for the first time, there are multiple installation methods. Refer to the following to decide on the method.

POINT

▶ To set up multiple servers with the same model and configuration, refer to "3.5 Installation on Multiple (the Second and Subsequent) Servers" (→pg.104).

What OS will you use?

Linux → For the use of Linux, refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

Windows Server 2003 /Windows 2000 Server

Will you use ServerStart?

No → Installation is performed manually. Refer to "4.2 Starting Manual Installation" and perform installation.

Yes

Refer to "3.1 Guided mode" and perform installation.
* If you follow the wizard, setup will be performed correctly.

POINT

When setting setup information in advance on the client computer, refer to "3.2 Preconfiguration Mode" and perform installation.

■ Installation Using ServerStart

When an OS is installed using ServerStart, the driver for the expansion card that is automatically recognized will be installed automatically. In addition, high reliability tools and array controller administrative tools are installed automatically. Installation using ServerStart is recommended.For features of ServerStart, refer to "1.2.1 Setup Support Tool - ServerStart" (→pg.16).

■ Installation While Maintaining the Established RAID Environment

In guided mode or preconfiguration mode, select [Use existing array] for [Configuration mode] at [RAID Wizard] (in the [RAID Configuration] window) and install the OS.

■ Installation Using ServerStart While Maintaining the Existing Partitions

In expert mode, start up Disk Manager, format the installation partition, and install the OS.

2.3 Precautions on Installation

Read the following notes before starting OS installation.

2.3.1 Installation Partition Size

For installation using ServerStart, the installation partition size can be set as follows, depending on the OS to be installed and format.

table: Installation Partition Size

Available size	Windows Server 2003	Windows 2000 Server
Minimum	2200MB	2048MB
Maximum	2TB	2TB

● **Notes**

- When you want to set the OS and BOOT partitions in different partitions, specify the partition size directly.

  (The BOOT partition is the partition for startup. Minimum information required for startup, such as "ntldr", is stored.

  The OS partition is the partition for installing the OS.

- In either of the following cases, specify a partition size less than 2TB.
  - When the same partition is specified as the OS and BOOT partitions
  - When different partitions are specified as the OS and BOOT partitions
- The OS cannot be installed in a partition larger than 2TB.

2.3.2 Notes on Configuring RAID

Take the following notes when you configure a RAID system.

■ Hardware Configuration

- Only internal hard disk units can be used.
- Be sure to use hard disk units of the same model and with the same capacity.
- Two hard disk units can be configured for installation. An array configuration cannot be established with only one unit.
- The only RAID level configurable with this server is RAID1.

IMPORTANT

▶ When the OS is installed using ServerStart, only one RAID card can be installed. If you need more cards, install them after OS installation.

■ Checking before OS Installation

- When a RAID-configured disk is used
  Used hard disk units can contain unnecessary partition or array configuration information that can cause unforeseeable problems.
  Before connecting a used hard disk unit to this server, connect it to a different system and perform low-level formatting on the hard disk unit.For the low-level formatting procedure, refer to the manual supplied with the system used for formatting.When performing low-level formatting on a hard disk unit used on this server, refer to "8.3.8 Formatting hard disks physically" (→pg.244).
- Number of disk units
  If only one hard disk unit is set, installation with ServerStart causes an error and will be aborted.Be sure to configure two units.

2.3.3 Notes on a Multiple LAN Adapter Configuration

Using the OS installation wizard of ServerStart, you can configure multiple LAN adapters (network adapters) on the system. However, there are the following limitations.

● Adapter Numbers

To configure multiple LAN cards, select the adapter numbers in order of Adapter 1 and Adapter 2, and enter settings for each adapter. Note that the order of adapter numbers is not necessarily the same as the order of slots for the installed LAN adapters. This means that the setting for Adapter 1 is not always applied to the onboard LAN. After installing the OS, check the LAN adapters to make sure that they are configured as intended.

2.3.4 Cautions for Using ServerStart

■ Operating ServerStart

Most ServerStart operations are performed with the mouse. Items may not be moved with the [Tab] key or cursor keys. Be sure to use the mouse when operating ServerStart.

■ Ejecting the CD-ROM

Do not eject the ServerStart CD-ROM while ServerStart is running. If the ServerStart CD-ROM is ejected and inserted again, ServerStart starts up in multiple windows, and settings you have made can be lost.

■ Exiting ServerStart

After operation in guided mode or expert mode, exiting ServerStart restarts the system. Ejecting disks from the floppy disk and CD-ROM drives and click [OK]. When the display on the screen disappears, turn off the system.

■ License for Use of System for ServerStart

"License for Use of System for ServerStart" linked from the ServerStart startup window is a license for use of Windows PE contained in the ServerStart CD-ROM. Windows PE for starting up ServerStart can be only used for installing Windows Server 2003 or Windows 2000 Server provided under a separate legal license.

■ Setting Up the Printer

ServerStart does not support setup of printers. Perform installation after setup is completed.

2

Checking before OS Installation

2.3.5 Expansion Cards Supported by ServerStart

ServerStart supports automatic driver installation for the following expansion cards.

table: Automatic Expansion Card Driver Installation

Name	Model	Bus
Onboard FDD/IDE	-	-
Onboard SCSI	-	PCI
Onboard LAN	-	PCI
Onboard VGA	-	PCI
RAID Ctrl 2-Channel 128 MB w/ BBU	PG-142E3	PCI
Fibre Channel Controller	PG-FC106	PCI
LAN cards	PG-1852	PCI
	PG-1862	PCI
	PG-1882L	PCI
	PG-1892L	PCI
SCSI Ctrl U160 lp	PG-130L	PCI

2.3.6 Cautions for Manual Installation

■ Cautions for Configuring a Disk Array with an Onboard SCSI Array Controller

Disk array configuration on the onboard SCSI array controller must be completed before the OS is installed. To check the onboard SCSI array controller configuration, start up the SCSI Setup Utility. For more details, refer to "8.3 SCSI Setup Utility" (→pg.233).
If a disk array is not configured on the onboard SCSI array controller, the normal SCSI configuration is established.

■ Free Space Required for Installation

The partition where the OS is installed must have enough free space for obtaining memory dump. For more details, refer to "5.1 Memory Dump/Paging File Setting" (→pg.128).

■ Cautions on Restarting

In the course of installation, a message appears to indicate that the setup program restarts. Wait until it restarts.
For more details on background operations, refer to "PRIMERGY RX200 S2 Onboard SCSI RAID User's Guide".

2.4 Preparation for Using ServerStart on a Client Computer

When using the preconfiguration mode for setting installation information in advance or when creating a driver disk using the FloppyBuilder function, install ServerStart on the client computer.

● System Requirements for Client Computers

Client computers must satisfy the following requirements.

Hardware	Personal computers operated with Windows NT, Windows XP Professional, or Windows 2000 Professional (A CD-ROM drive and 10MB or more of free space are required.)
Software	Microsoft® Internet Explorer 5.5 or later

2.4.1 Installing ServerStart

🖐 IMPORTANT

▶ If a different version of ServerStart has been installed, uninstall it. The FloppyBuilder function or installation wizard may not operate properly on a different version.
For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.51).

1 Insert the ServerStart CD-ROM into the client computer.

The [ServerStart Launcher] window appears.

When the [ServerStart Launcher] window does not appear, execute "Launcher.exe" in the CD-ROM.

2 Click [OK].

The Windows installer starts and the Setup window appears.

3 Click [Next].

The [License Agreement] window appears.

4 Select [I accept the license agreement] and click [Next].

The [User Information] window appears.

⚠️IMPORTANT
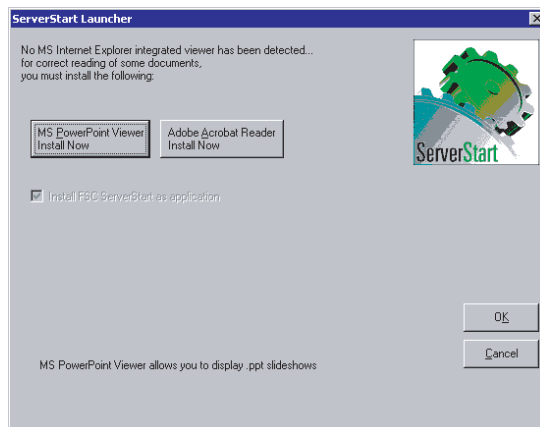
▶ The setting for this item cannot be changed.

5 Enter the user information of the software and click [Next].

The [Installation Folder] window appears.

6 Specify the installation folder and click [Next]. To change the installation folder, click [Browse] and select the folder.

The [Select Features] window appears.
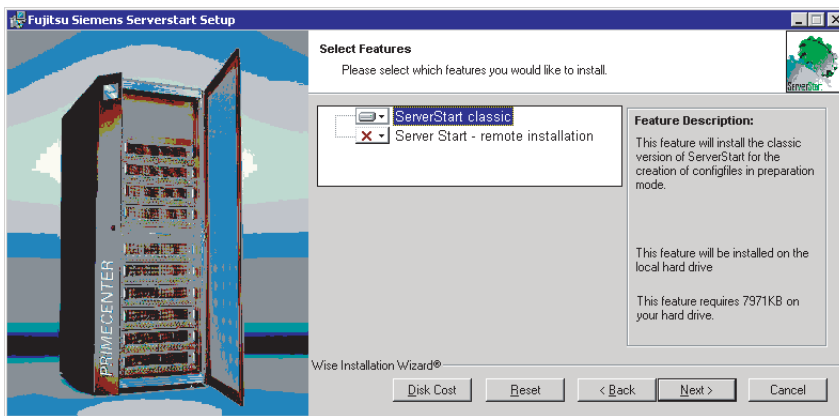
7 Set [ServerStart - remote installation] to "Disable this function" and click [Next].

The [Ready to Install the Application] window appears.
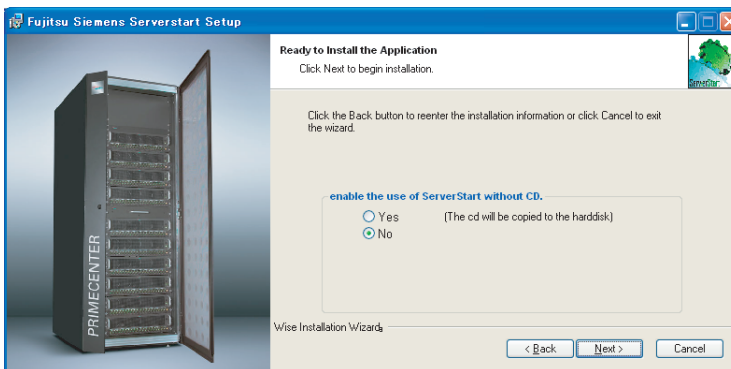
8 Specify whether or not to copy the contents of the CD.

When you select [Yes] for "enable the use of ServerStart without CD.", you can start the preconfiguration mode on the client computer without using the CD-ROM.
If you select [Yes], specify the target folder. The target folder must have enough free space to copy the contents of the CD-ROM.

IMPORTANT

▶ On WindowsNT, the CD-ROM is not copied. You must click [No]. The ServerStart CD-ROM is required to start ServerStart.

9 Click [Next].

Installation is executed.

POINT

▶ If a message prompting you to restart the system appears before or after installation, eject the CD-ROM and restart the system according to the message. When the system restarts, insert the ServerStart CD-ROM and start installation again.
If the "This program does not respond." message appears during restart operation, click [Exit] to continue the restart operation.

When the installation is completed, the completion window appears.

10 Click [Exit].

ServerStart has been installed to the client computer.

2.4.2 Uninstalling ServerStart

Perform the following procedure to uninstall ServerStart from the client computer.

1 Click [Start] → [Settings] → [Control Panel].

2 Double-click [Add or Remove Applications] ([Add or Remove Programs] on some operating systems).

3 Select [Fujitsu ServerStart] and click [Remove] (or [Modify]).

When the uninstallation is executed successfully, Fujitsu ServerStart is deleted.
If [ServerStart - remote installation] has been installed using ServerStart, "FjPXEServer" seems undeleted. Leave it and complete the operation.

POINT

▶ On Windows 2000 Professional clients, "Add or Remove Applications" may become unable to respond during uninstallation. If this occurs, log off from the system.

2

Checking before OS Installation

Chapter 3

OS Installation Using ServerStart

This chapter explains how to install the OS in the server using ServerStart.

3.1 Guided Mode

In guided mode, follow the wizard to specify hardware configuration and the OS to be installed, save the information necessary for installation in a configuration file, and install the OS.

3.1.1 Starting Up the Guided Mode

Start up the guided mode.

IMPORTANT

▶ When you do not configure an array but will perform installation to an array-configured server, remove the array before starting up ServerStart.For the procedure for deleting an array, refer to "8.3.7 RAID Properties Submenu" (→pg.242).

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].

POINT

▶ Set the ServerStart floppy disk in the write-enabled state.

The network setting window for remote installation appears.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configurations, this process may take a few minutes.

3

OS Installation Using ServerStart

When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

4 Click [Build a ServerStart Floppy Disk].

Creation of a ServerStart floppy disk starts.When the creation is completed, the "Floppy disk has been created." message appears.

5 Click [OK].

"Please Select your keyboard" window appears.

6 Select your keyboard language from the dropdown list and click [OK].

The subsequent start procedure may take several minutes.
The [Welcome to ServerStart] window appears.

7 Click [Click here to prepare and/or initiate an operating system installation].

The [Select the operating system to be installed] window appears.
Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.

8 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

9 Click the OS to install.

10 Click [Prepare & initiate an unattended installation of (OS)].

The guided mode for the selected OS starts up.
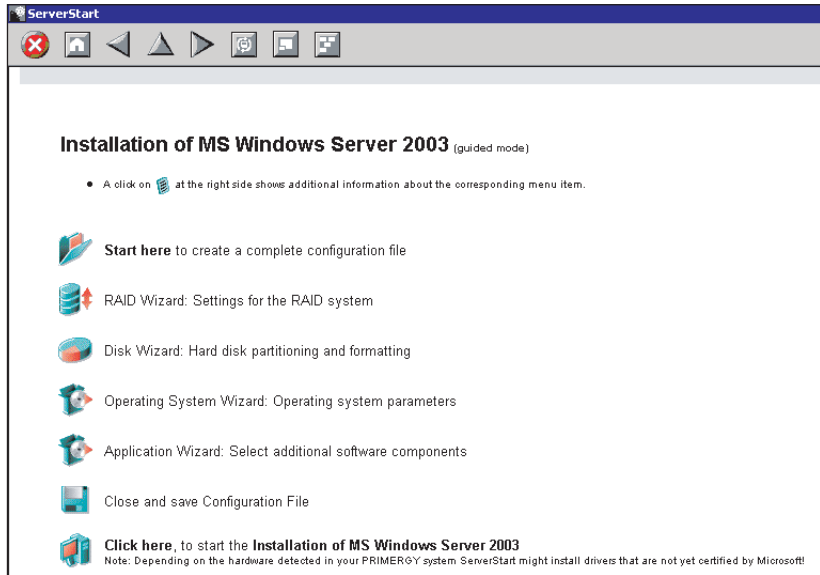
Start up the wizards to set items in the following procedures.

Exiting the wizard returns the display to the guided mode window.

3

OS Installation Using ServerStart
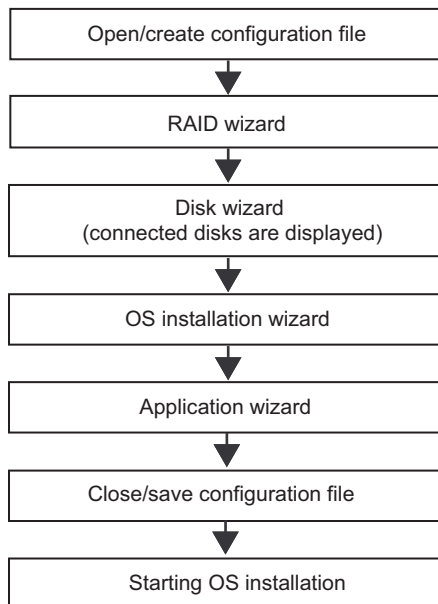
3.1.2 Open/create a Configuration File

Open a configuration file. Or create a new file.

1 Click [Start have to create a complete configuration file].

The [Open ServerStart Configuration File] window appears.
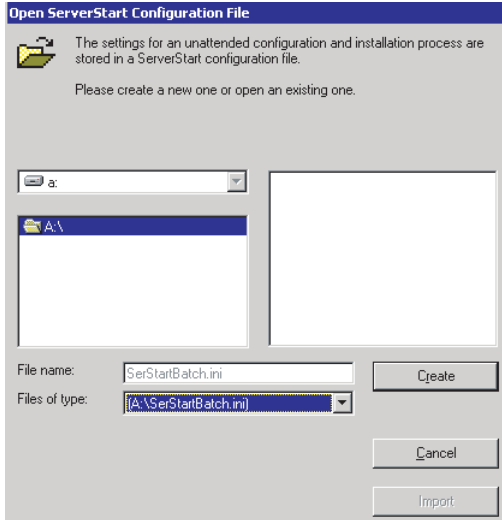
IMPORTANT

‣ Once a configuration file is opened, another file cannot be opened until you click [Close and save Configuration File].

2 Select the configuration file and click [Create].

The [Create] button is changed to the [Continue] button.

3 Click [Continue].

The [RAID Wizard] starts up automatically (→"3.1.3 RAID wizard" (pg.59)).

3.1.3 RAID wizard

Configure RAID.

1 Click [RAID Wizard: Setting for the RAID system].

The [RAID Configuration] window appears.

Only array controllers already installed are displayed.

The number of hard disk units connected to the array controller is displayed.
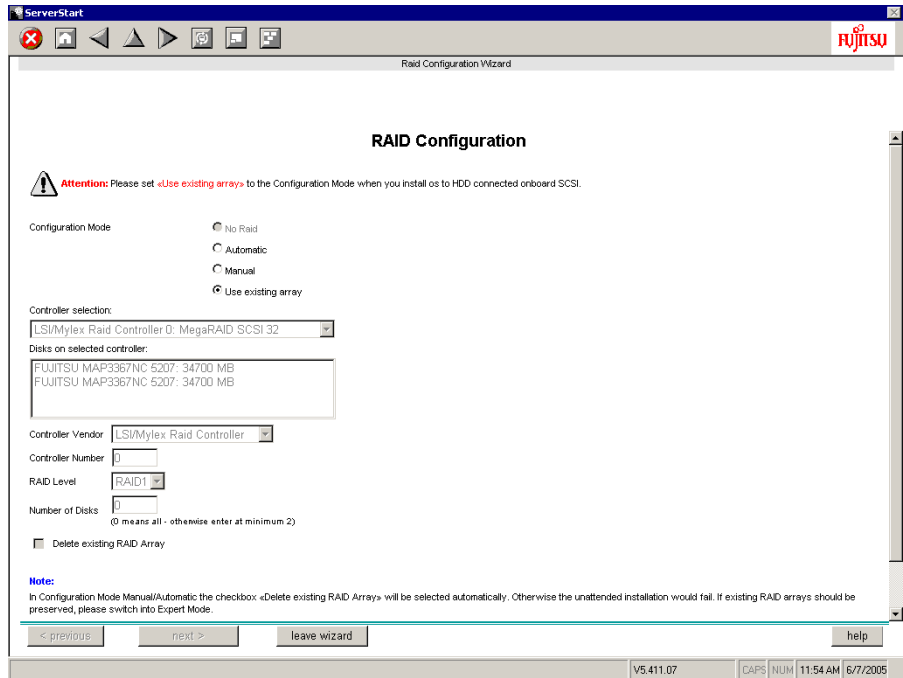
⚲POINT

▶ If you open a configuration file that has been created before, displayed settings may differ from the previously set values. Be sure to check the settings.

▶ When you do not configure RAID, set the configuration mode to "Use existing array" before exiting the wizard.

2 Set items and click [leave wizard].

The RAID wizard closes.

3

OS Installation Using ServerStart

3.1.4 Disk wizard

Create and format hard disk partitions.

IMPORTANT

▸ The disk wizard starts up with the default settings. Be sure to click [MODIFY] to check the settings. Change them as necessary.

1 Click [Disk Wizard: Hard disk partitioning and formatting].

The [Disk Overview] window appears.

POINT
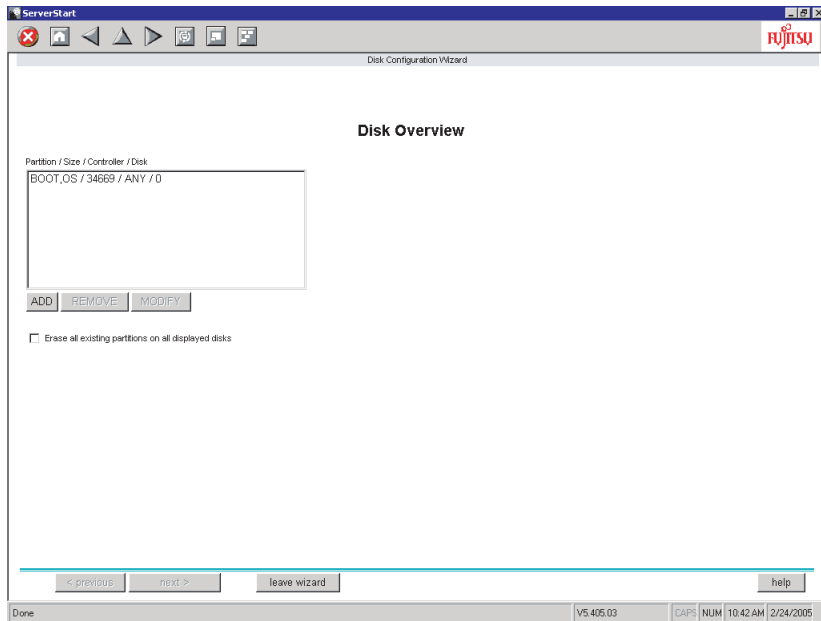
▸ When the installation disk has partitions, check [Erase all existing partitions on all displayed disks].
▸ When other disks than the installation disk have an active partition, create a partition on the disks with an active partition and check [Erase all existing partitions on all displayed disks].

2 Add, remove, or modify partitions as necessary.

IMPORTANT

▶ Partition size of the FAT file system
When "FAT" is selected in [File system] and a value equal to or more than 4095MB or "Automatic setting" is specified in [Partition size], the size of created partitions will be 4095MB.

▶ The following limits apply to the volume label length. A volume label longer than the limit may be used. However, it can cause installation failure. Enter a volume label within the limit.
•FAT: Up to 11 byte characters
•NTFS: Up to 32 byte characters

Add a partition

1. Click [ADD].

The [Disk Configuration] window appears.
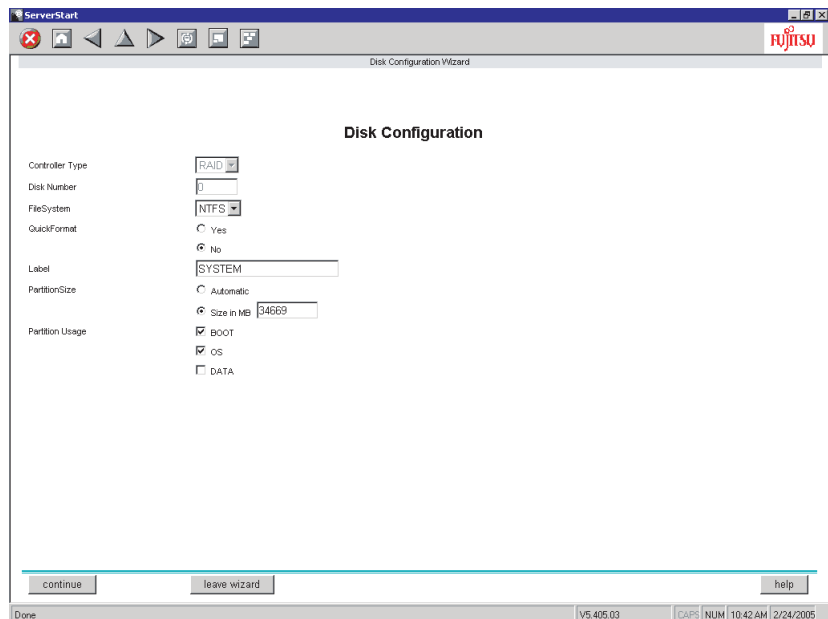
2. Set items and click [continue].

The new partition is added to the partition list.

Remove a partition

1. Select the partition to remove and click [REMOVE].

The partition is removed.

Modify the partition configuration

1. Select the partition to modify and click [MODIFY].

The [Disk Configuration] window appears.

2. Change items and click [continue].

The partition is modified.

3 Click [leave wizard] after settings are completed.

The disk wizard closes.

IMPORTANT

‣ If you are in guided mode and want to start up the disk wizard again after exiting the wizard, save the configuration file.
ServerStart may restart when the disk wizard restarts. If this occurs, open the configuration file you have saved and start setting from the item where you have discontinued. If the configuration file is not saved, the settings are lost. Start setting again from the beginning.

3.1.5 OS Installation Wizard

Set computer information, user information, and the network protocol.
ServerStart can configure multiple network patterns. When configuring a domain controller, refer to "Using ServerStart to configure the Network".

POINT

‣ The setup window differs depending on the OS to be installed. The following describes operations on Windows Server 2003.

1 Click [Operating System Wizard: Operating system parameters].

The [Windows Installation] window appears.
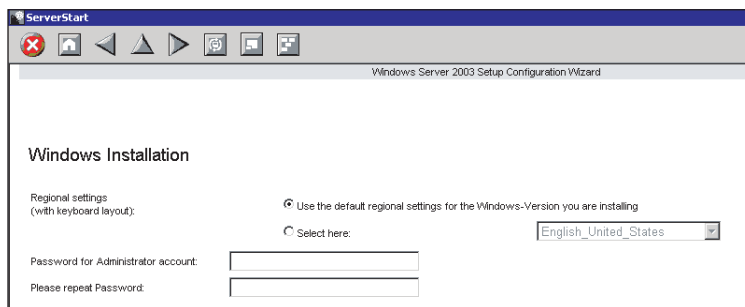
2 Enter the password in [Password for Administrator account] and click [Next].

POINT

‣ If the password differs between [Password for Administrator account] and [Please repeat Password], an error dialog window appears. Enter the correct password.

The [Computer Identification] window appears.
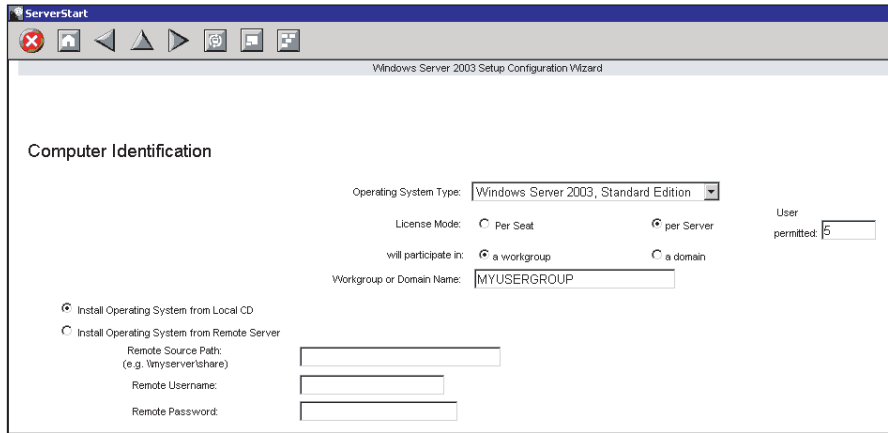
3 Set items and click [Next].
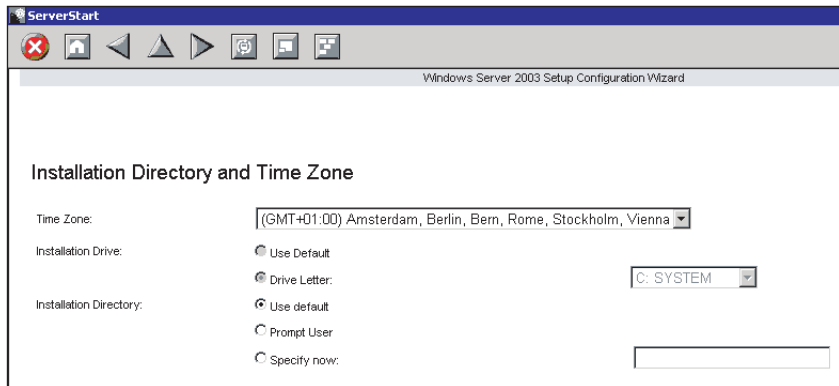
The [Installation Directory and Time Zone] window appears.

Set items and click [Next].

The [User Information] window appears.
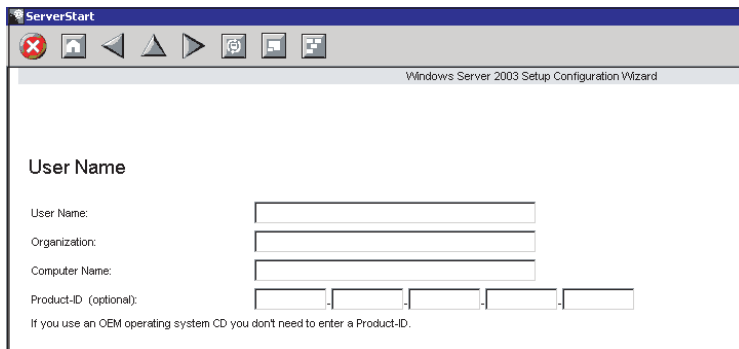
4 Set items and click [Next].

The [Display Settings] window appears.
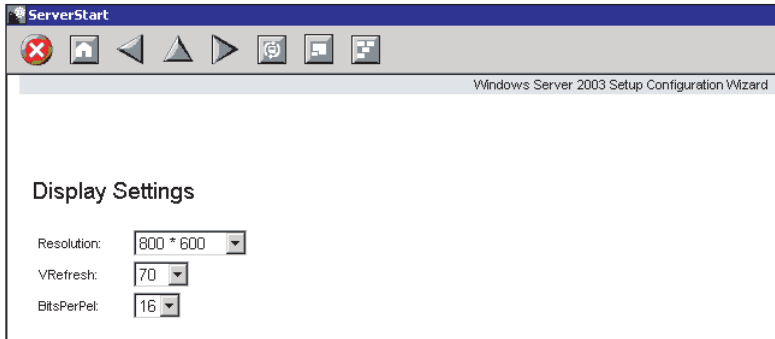
5 Set items and click [Next].

The [Network Protocol] window appears.
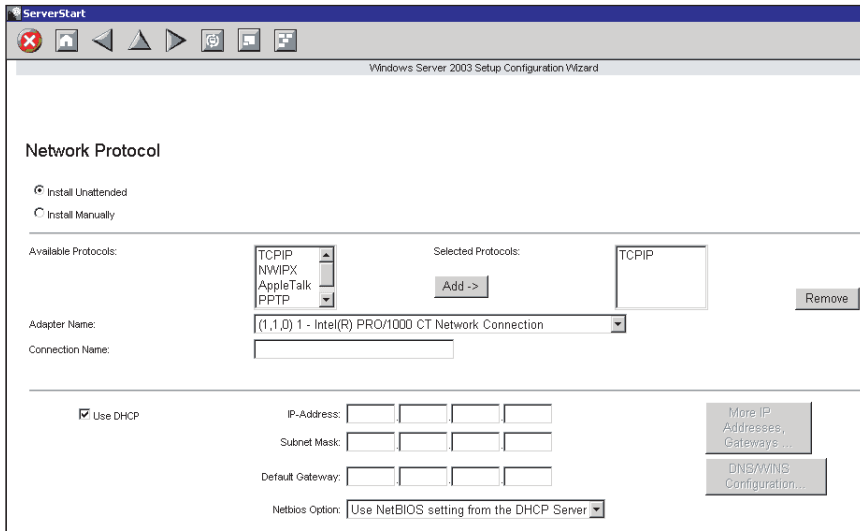
6 Set items and click [Next].

The [Software Components] window appears.
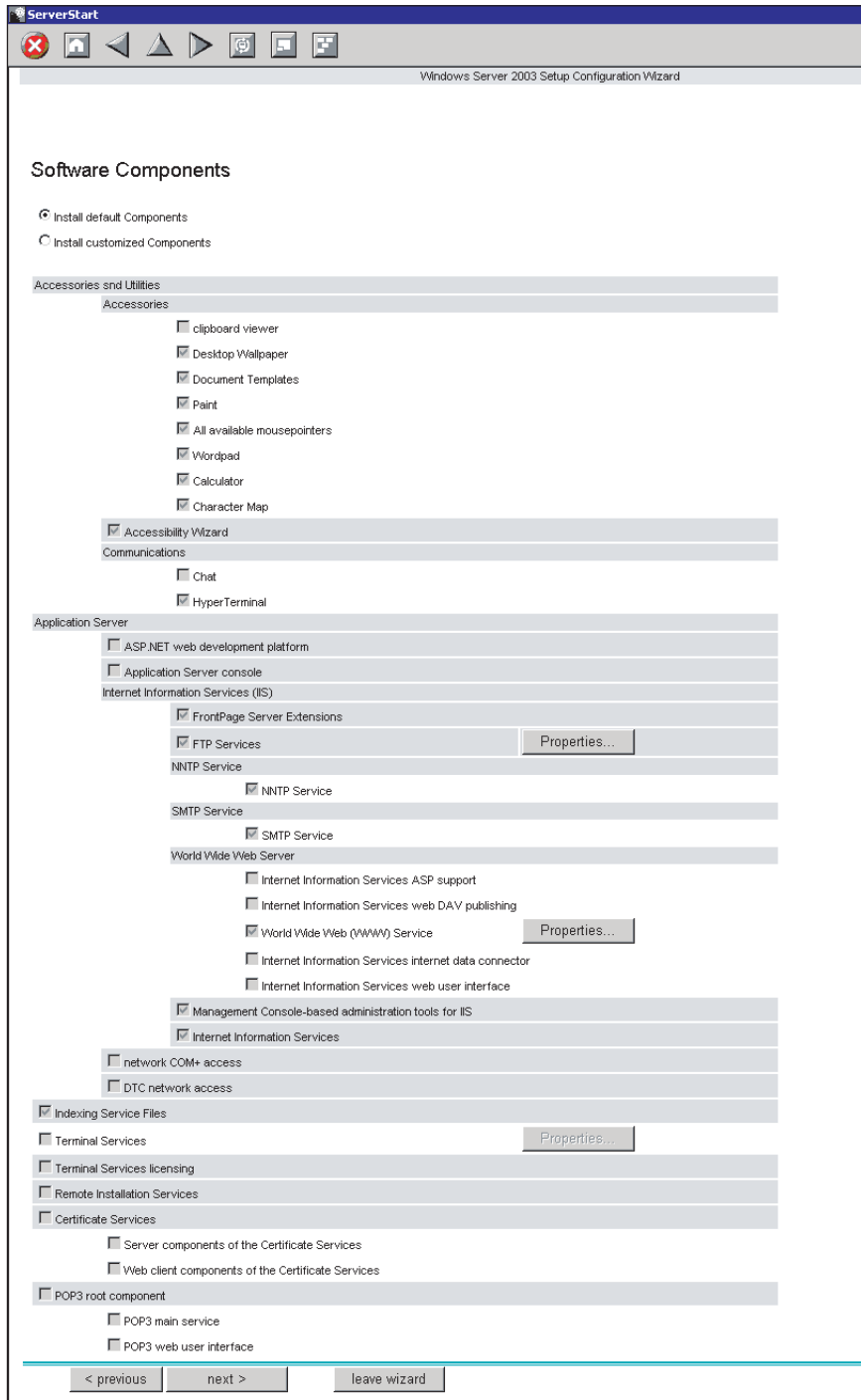
7 Set items and click [Next].

The [Services] window appears.
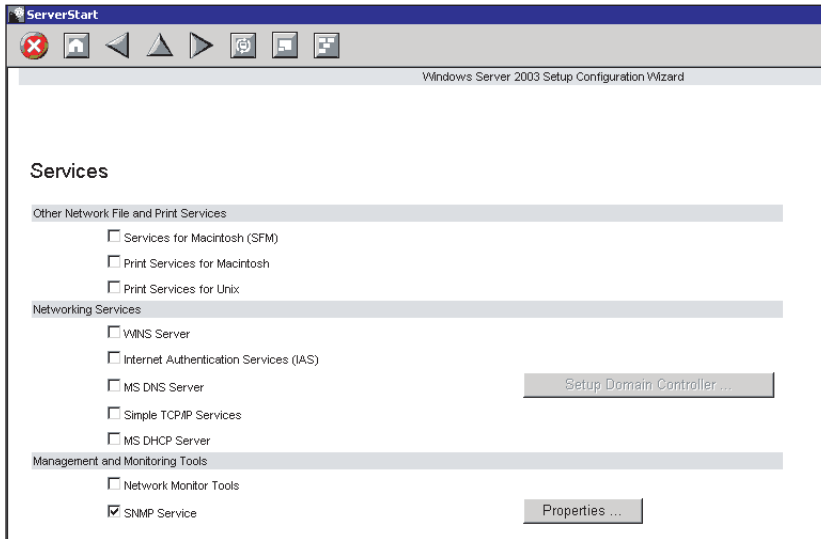
8 Set items and click [leave wizard].

The OS installation wizard closes.

3.1.6 Application Wizard

Specify installation of supplied applications such as high reliability tools.

1 Click [Application Wizard: Select additional software components].

The application wizard appears.
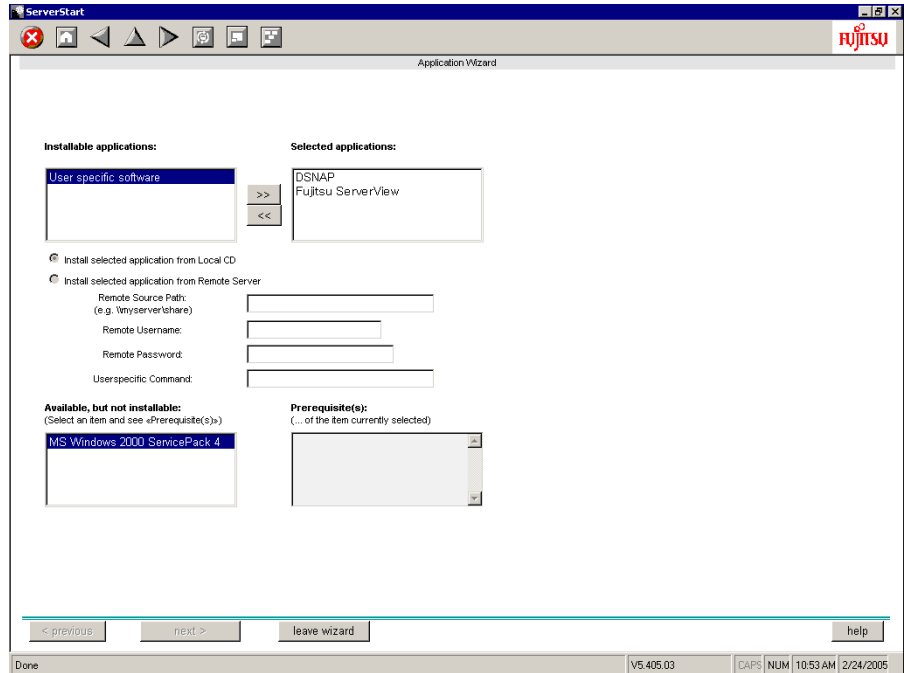
2 From the [Installable applications] list, select applications to be installed and click [>>].

Set all applications to be installed on the [Selected applications] list.

3 Click [leave wizard].

The application wizard closes.

3.1.7 Close/save the Configuration File

When settings in all wizards are completed, save the configuration file.

1 Click [Close and save Configuration File].

The [Save ServerStart Configuration File] window appears.

2 Click [Save As].

The configuration file is saved.

IMPORTANT

> ▶ You can specify any name for the configuration file. However, OS installation is possible only when it is saved as "SerStartBatch.ini". When installing the OS, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

3.1.8 Starting OS Installation

Install the OS to the server.
During installation, do not use the mouse or keyboard unless it is necessary for installation operations.
Otherwise, installation may fail.

1 Click [Click here, to Start the Installation of (OS)].

The [ServerStart Unattended Mode] window appears.
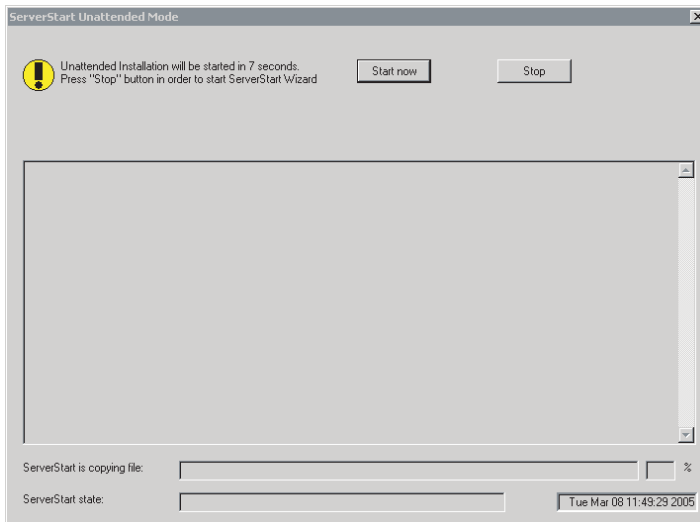
2 Click [Start now].

POINT

▸ Clicking [Start now] deletes all disk contents and starts installation. Click [Stop] when you do not perform installation.

After 10 seconds, installation starts automatically.

- When RAID has been configured, the system restarts.
- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].
  This message does not appear when Service Pack is not selected.
- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK].
  This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.
- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].

3 When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].

After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.

4 Insert the ServerStart CD-ROM and click [OK].

The License Agreement window appears.

5 Click [I agree].

After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.

6 Eject the CD-ROM and floppy disk and click [OK].

Then the system is restarted.
The system continues the installation operation after restart.
OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.

7 When a confirmation message to restart appears, click [Restart].

The system restarts and installs high reliability tools.
Installation is performed automatically.

8 When a message on installation completion appears, press any key.

9 Restart the system.

Click [Start] → [Shutdown]. Select [Restart] and click [OK].
The system restarts.

3

OS Installation Using ServerStart

10 When the system restarts, log on to the server using the Administrator account for the local computer.

The server setup and OS installation have been completed.
Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures before starting server operations.

3.2 Preconfiguration Mode

In preconfiguration mode, set and save the information necessary for installation in a configuration file on a client computer (with a CD-ROM drive and 10MB or more of free space). Set the saved configuration file on the server for installation.

POINT

▶ If ServerStart is not installed in the client computer where the preconfiguration mode is executed, refer to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.49) to install ServerStart. If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.51).

IMPORTANT

▶ If ServerStart is started up on a computer where a different version of ServerStart is installed, the installation wizard may not operate properly. Make sure to uninstall a different version of ServerStart.

3.2.1 Starting Up the Preconfiguration Mode

Start up the preconfiguration mode.

1 Start up ServerStart.

If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

1. Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

1. Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.

ServerStart starts up and the [Welcome to ServerStart] window appears.
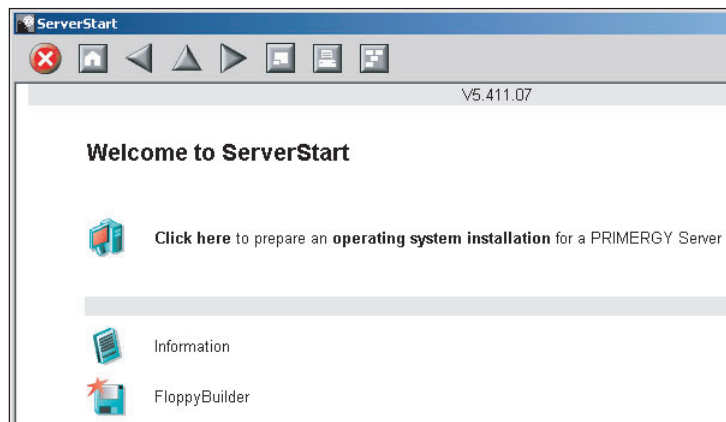
2 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.
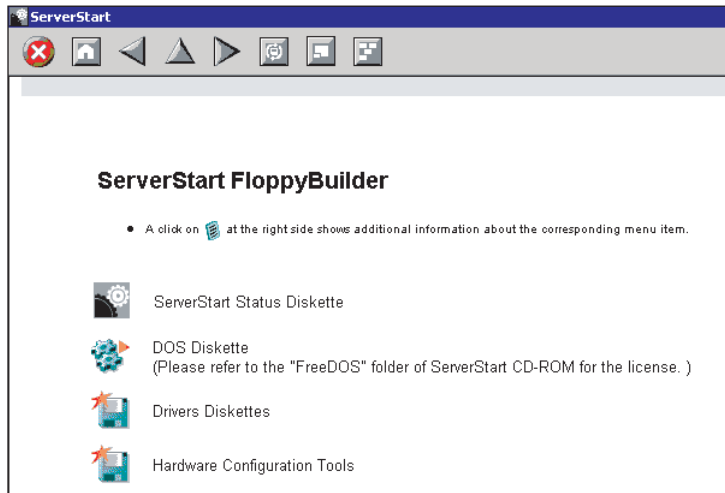
3 Click [ServerStart Status Diskette].

A message prompting you to insert the floppy disk appears.

4 Insert the ServerStart floppy disk supplied with the server and click [OK].

POINT

▶ Set the ServerStart floppy disk in the write-enabled state.

Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.

5 Click [OK].

6 Click [(HOME)] on the tool bar.

The display returns to the [Welcome to ServerStart] window.

7 Click [Click here to prepare an operating system installation for a PRIMERGY Server].

The [Prepare the installation of an operating system for PRIMERGY Servers] window appears.

IMPORTANT

▶ Before starting installation, click [Cautions for Installation] and read the contents. Important information such as limitations on disk configuration is described.

8 Click [Creation of a ServerStart Configuration file for the installation of an Microsoft Windows Operating System].

The [Microsoft Windows Operating System Installation] window appears.

9 Select the OS to install.

The [Preparing the Installation] window appears.

Preparing the Installation of MS Windows Server 2003

- A click on 📚 at the right side shows additional information about the corresponding menu item.

Start here to create a complete configuration file

RAID Wizard: Settings for the RAID system

Disk Wizard: Hard disk partitioning and formatting

Operating System Wizard: Specify operating system parameters

Application Wizard: Select additional software components

Close and save Configuration File

3

OS Installation Using ServerStart
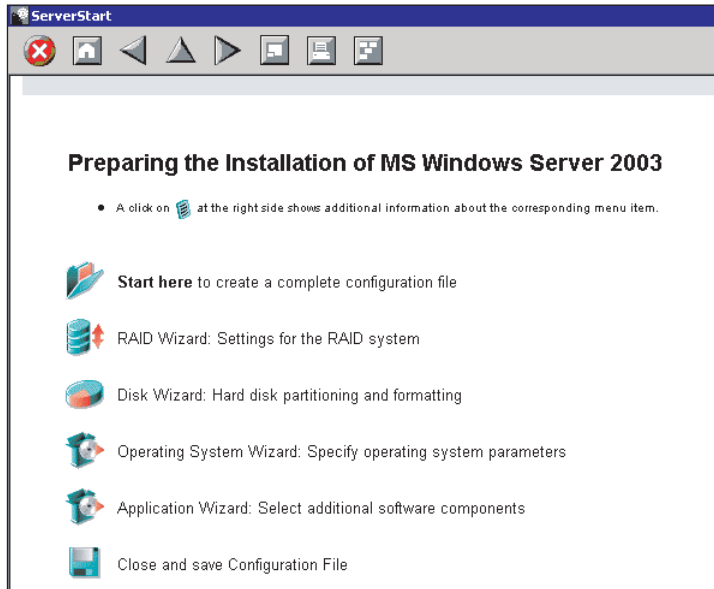
3.2.2 Configure Settings in Wizards

Click the wizards to set items in the following procedures. For setting procedures, refer to description on guided mode wizards ("3.1.2 Open/create a Configuration File" (→pg.58) to "3.1.6 Application Wizard" (→pg.67)).
Exiting a wizard returns the display to the preconfiguration mode window.

```
┌─────────────────────────────────────┐
│  Open/create configuration file      │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│          RAID wizard                 │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│          Disk wizard                 │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│      OS installation wizard          │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│       Application wizard             │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Close/save configuration file      │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Activate ServerStart in the server │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│     Starting OS installation         │
└─────────────────────────────────────┘
```
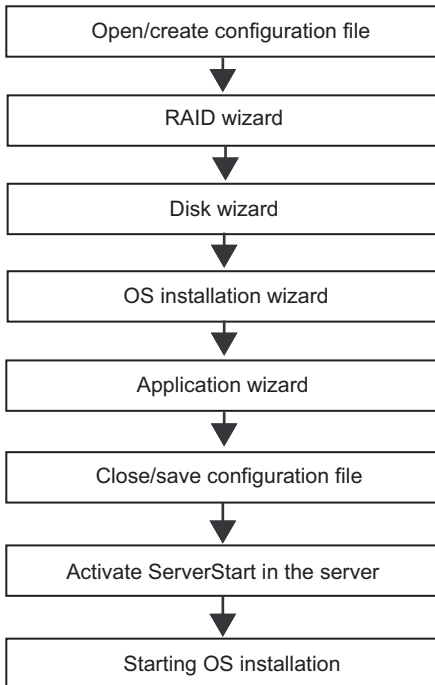
3.2.3 Close/save the Configuration File

When settings in all wizards are completed, save the configuration file.

1 Click [Close and save Configuration File].

The [Save ServerStart Configuration File] window appears.

2 Click [Save As].

The [ServerStart Remote Installation IP Settings] window appears.

3 Set items when performing remote installation.

4 Click [Set].

The configuration file is saved.

IMPORTANT

▶ You can specify any name for the configuration file. However, OS installation is possible only when it is saved as "SerStartBatch.ini". When installing the OS, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

3.2.4 Starting OS Installation

Install the OS to the server using the created configuration file.

During installation, do not use the mouse or keyboard unless it is necessary for installation operations. Otherwise, installation may fail.

IMPORTANT

▶ When you do not configure an array but will perform installation to an array-configured server, remove the array before starting up ServerStart. For the procedure for deleting an array, refer to "8.3.7 RAID Properties Submenu" (→pg.242).

1 Turn on the server and insert the ServerStart CD-ROM immediately.

A message prompting you to insert the ServerStart floppy disk appears.

2 Insert the ServerStart floppy disk containing the created configuration file and click [OK].

IMPORTANT

▶ Set the ServerStart floppy disk in the write-enabled state. If it is write protected, installation will fail.

The [Initializing of ServerStart] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [ServerStart Unattended Mode] window appears.
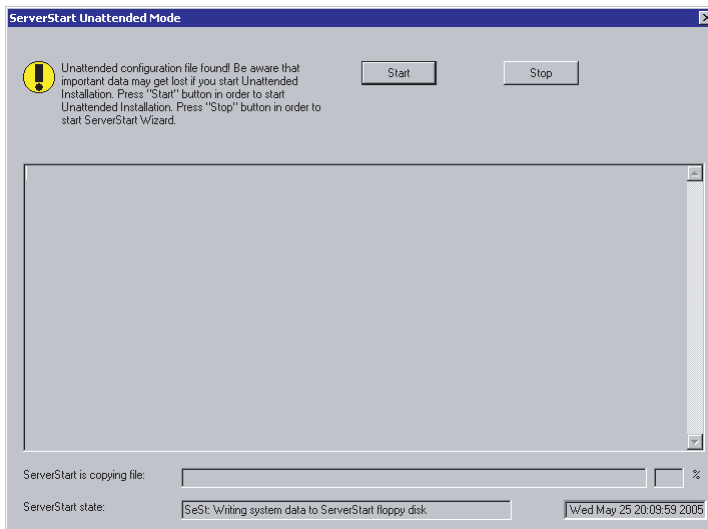
3 Click [Start].

Installation starts.

- When RAID has been configured, the system restarts.
- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].
  This message does not appear when Service Pack is not selected.
- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK]. This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.
- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].

4 When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].

After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.

5 Insert the ServerStart CD-ROM and click [OK].

The License Agreement window appears.

6 Click [I agree].

After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.

7 Eject the CD-ROM and floppy disk and click [OK].

The system restarts. The system continues the installation operation after restart. OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.

8 When a confirmation message to restart appears, click [Restart].

The system restarts and installs high reliability tools. Installation is performed automatically.

9 When a message on installation completion appears, press any key.

10 Restart the system.

Click [Start] → [Shutdown]. Select [Restart] and click [OK]. The system restarts.

11 When the system restarts, log on to the server using the Administrator account for the local computer.

The server setup and OS installation have been completed. Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures before starting server operations.

3

OS Installation Using ServerStart

3.3 Expert Mode

In expert mode, start up Disk Manager, format the installation partition, and install the OS.

Use the expert mode only when you want to perform installation while maintaining the existing partitions. Use the guided mode for normal installation.

3.3.1 Starting Up the Expert Mode

Start up the expert mode.

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].

The network setting window for remote installation appears.

POINT

▶ Set the ServerStart floppy disk in the write-enabled state.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configurations, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

4 Click [Build a ServerStart Floppy Disk].

Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.

5 Click [OK].

"Please Select your keyboard" window appears.

6 Select your keyboard language from the dropdown list and click [OK].

The subsequent start procedure may take several minutes.
The [Welcome to ServerStart] window appears.

7 Click [Click here to prepare and/or initiate an operating system installation].

The [Select the operating system to be installed] window appears.
Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.

8 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

9 Select the OS to install.

10 Click [Install MS Window Server 2003 interactively (expertise required)].

The expert mode starts.
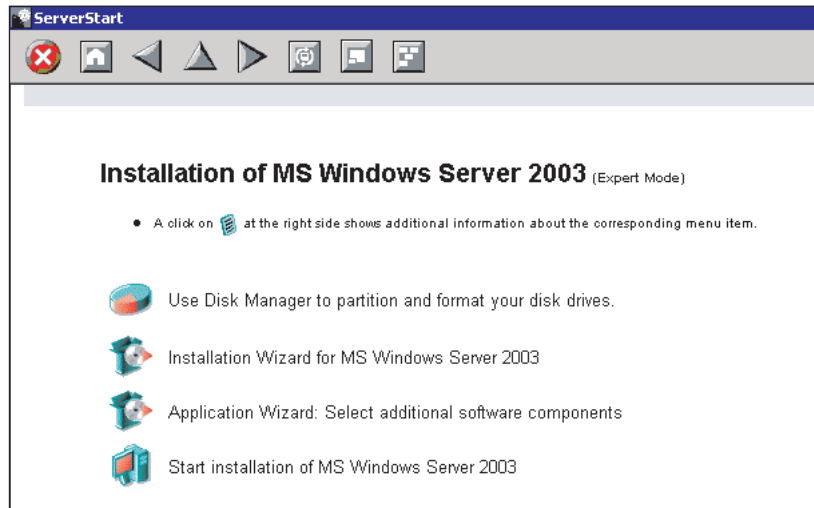
Start up the configuration tools to set items in the following procedures. Exiting a tool returns to the display to the expert mode window.
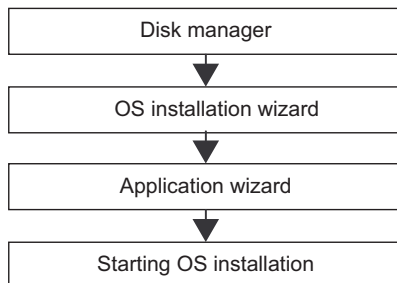
3.3.2 Disk Manager

Start up Disk Manager and format the installation partition.

1 Click [Use Disk Manager to partition and format your disk drives].

Disk Manager starts up.
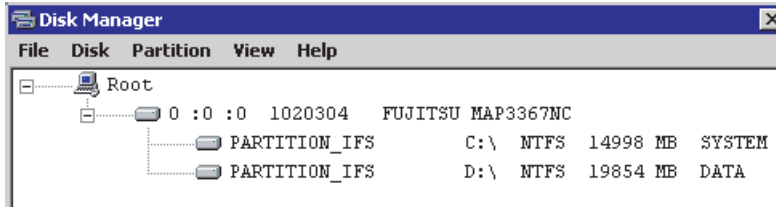
2 Format the OS installation partition. Select the OS installation partition and click the [Partition] menu → [Format].

The [Format Partition] window appears.
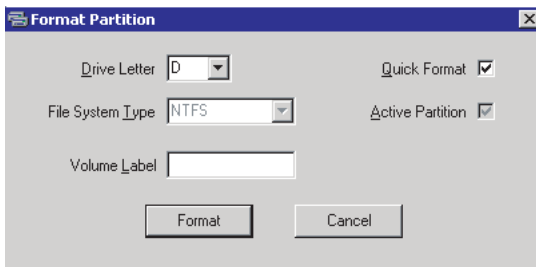
IMPORTANT

▶ Be sure to specify the active partition on drive C.
▶ Partitions equal to or larger than 4096MB cannot be FAT formatted.

3 Set items and click [Format].

The partition is formatted.

4 When the formatting is completed, click the [File] menu → [Exit].

Disk Manager closes and the display returns to the expert mode window.

3.3.3 OS Installation Wizard

Set computer information, user information, and the network protocol.

ServerStart can configure multiple network patterns. When configuring a domain controller, refer to "Using ServerStart to configure the Network".

POINT

▶ The setting window differs depending on the OS to be installed. The following describes operations on Windows Server 2003.

1 Click [Installation Wizard for MS Windows Server 2003].

A message prompting you to specify the configuration file appears.

```
ServerStart                                                    ×

  ?    Do you want to specify an existing configuration file to preset the
       parameters for the Operating System Wizard and the Application Wizard ?

              Yes              No
```
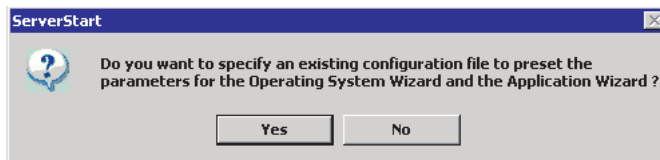
2 Click [No].

The [Windows Installation] window appears.

3 Enter the password in [Password for Administrator account] and click [Next].

POINT

▶ If the password differs between [Password for Administrator account] and [Please repeat Password], an error dialog window appears. Enter the correct password.

The [Computer Identification] window appears.

4 Set items and click [Next].

The [Installation Directory and Time Zone] window appears.

5 Set items and click [Next].

The [User Information] window appears.

6 Set items and click [Next].

The [Display Settings] window appears.

7 Set items and click [Next].

The [Network Protocol] window appears.

8 Set items and click [Next].

The [Software Components] window appears.

9 Set items and click [Next].

The [Services] window appears.

10 Set items and click [leave wizard].

The display returns to the expert mode window.

3.3.4 Application Wizard

Specify installation of supplied applications such as high reliability tools.
For details on the application wizard, refer to "3.1.6 Application Wizard" (→pg.67).

3.3.5 Starting OS Installation

Install the OS to the server.

IMPORTANT

▶ When the installation partition is not empty, a confirmation message appears. If it does not matter, click [OK] to continue the installation procedure.

▶ If an incorrect setting (such as the CD key) is found during installation, an error window will appear. Enter the correct value in the window to continue the installation procedure. However, corrections made here are not reflected to the configuration file.

1 Click [Click here, to Start the Installation of (OS)].

A confirmation window asking whether you want to save the current settings appears.

2 Click [Yes].

The following window appears.
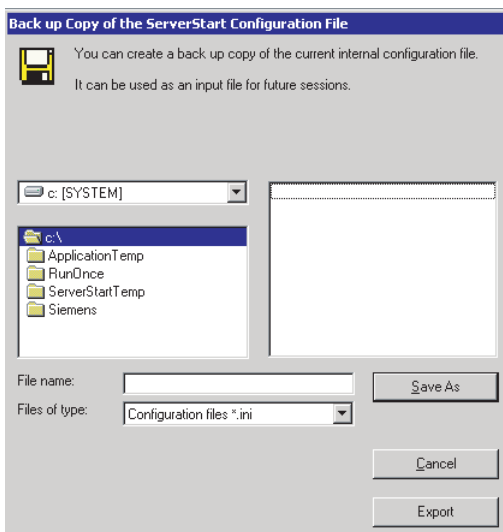
3 Enter the file name and click [Save As].

Installation starts automatically.

- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].

  This message does not appear when Service Pack is not selected.

- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK]. This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.

- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].

4 When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].

After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.

5 Insert the ServerStart CD-ROM and click [OK].

The License Agreement window appears.

6 Click [I agree].

After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.

7 Eject the CD-ROM and floppy disk and click [OK].

Then the system is restarted.

The system continues the installation operation after restart.

OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.

8 When a confirmation message to restart appears, click [Restart].

The system restarts and installs high reliability tools.

Installation is performed automatically.

9 When a message on installation completion appears, press any key.

10 Restart the system.

Click [Start] → [Shutdown]. Select [Restart] and click [OK].

The system restarts.

11 When the system restarts, log on to the server using the Administrator account for the local computer.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures before starting server operations.

3.4 Remote Installation

ServerStart supports remote installation.

IMPORTANT

▶ Before performing remote installation, be sure to read "Cautions for Remote Installation" in the online help.

3.4.1 Overview of Remote Installation

Remote installation is a method to save resources necessary for installation, such as the OS and Service Pack, in a different server on the network and install them via the network.
If a remote resource server is configured, you can install the same resources to multiple servers. This method is useful in configuring multiple servers.

● Target Server and Remote Resource Server/PXE Server

A server to which resources are installed is called a "target server". A server that stores resources necessary for remote installation is called a "remote resource server". A server that can start up a target server through network startup (PXE) is called a "PXE server".

■ Installation Method

Remote installation uses a PXE or a remote resource server.

● Remote Installation Using a PXE Server

In remote installation using a PXE server, the network startup (PXE) function of the PXE server starts up the target server and performs installation in preconfiguration mode. This method is used when the target server does not have a CD-ROM or floppy disk drive.

3

OS Installation Using ServerStart
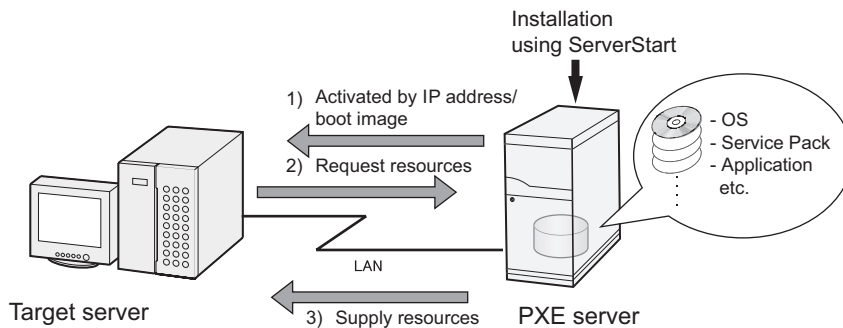
In addition to the PXE server, a "remote resource server" that stores remote resources and a "DHCP server" that performs the DHCP service are required for remote installation using a PXE server. When you have only one server, store remote resources on the PXE server to install the DHCP service. When you have multiple servers, select one for performing the DHCP service and another for storing remote resources.

● Remote Installation Using a Remote Resource Server

In remote installation using a remote resource server, ServerStart starts up on the target server. Procedures for starting installation are the same as those in normal installation (preconfiguration mode, guided mode, and expert mode). Once installation started, resources necessary for installation are provided from the remote resource server. Thus, procedures such as inserting a CR-ROM are not necessary.
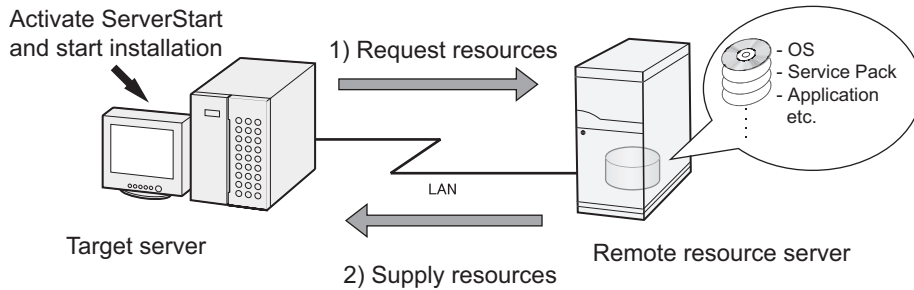
3.4.2 System Requirements for Remote Resource/PXE Servers

Because remote installation is performed via a network, the environment must have at least one Windows server and a local area network.

In addition, the following environment is required.

■ Remote Resource/PXE Server Requirements

table: System Requirements for Remote Resource/PXE Servers

	PXE server	Remote resource server
OS	Windows 2000 Server SP2 - SP4	Windows Server 2003 Windows 2000 Server Windows NT Server 4.0
Memory	256MB or more	256MB or more
Operating environment	• DHCP server function (required on the same network) • File sharing function (required)	• File sharing function (required)

IMPORTANT

Notes on the PXE server

▶ Check that no other PXE server exists on the same LAN.

▶ Servers installed with software with the PXE function such as SystemcastWizard/SystemcastWizard Professional, Quick Recovery Manager, or the Microsoft RIS function cannot be used as a PXE server.

■ Checking Server Free Space

Decide a server to use as a remote resource server / PXE server and check it for enough free space for storing resources.

● Checking the Number of Servers

• When you have only one server, use it as the remote resource server, PXE server, and DHCP service server. Check it for the required amount of free space.

• When you have multiple servers

  • Check if a server performing the DHCP service exists. If not, decide a server for the DHCP service.

  • When there are multiple resources, they can be divided and stored in multiple remote resource servers.

3

OS Installation Using ServerStart

● **Checking Server Free Space**

The following table shows the amount of free space required for each installation resource.

table: Free Space Required for Resources

Resource	Required free space
ServerStart	About 650MB
Windows Server 2003	644MB
Windows 2000 Server	472MB
Windows 2000 Service Pack 4	433MB

Calculate the total resource size. Check that the remote resource server / PXE server has enough free space (free space greater than the space required for the resources). When the amount of free space is insufficient, you must use more remote resource servers.

3.4.3 Preparation of the PXE Server (When the PXE Server is Used)

When performing remote installation using a PXE server, preparatory procedures, such as installing ServerStart, are required.
Perform the following procedures to prepare the PXE server.

```
┌─────────────────────────────┐
│   Starting the DHCP Service  │
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│     Installing ServerStart   │
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│       Checking Services      │
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│         Setting TFTP         │
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│   Preparation of Resources   │
└─────────────────────────────┘
```
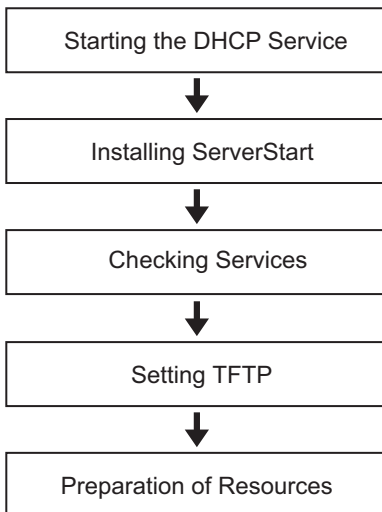
■ Starting the DHCP Service

Check that the DHCP service is running on the same network.
If the DHCP service function is not installed, perform the following procedures (for Windows Server 2003) to install the DHCP service.

1 Click [Start] → [Control Panel] → [Add or Remove Applications].

2 Click [Add or Remove Windows Components]. Click the [Dynamic Host Configuration Protocol (DHCP)] service from [Network Services].

The DHCP service is installed.

3 Create and configure a DHCP scope so that the IP address can be distributed.

■ Installing ServerStart

1 Insert the ServerStart CD-ROM into the PXE server.

The [ServerStart Launcher] window appears.

When the [ServerStart Launcher] window does not appear, execute "Launcher.exe" in the CD-ROM.
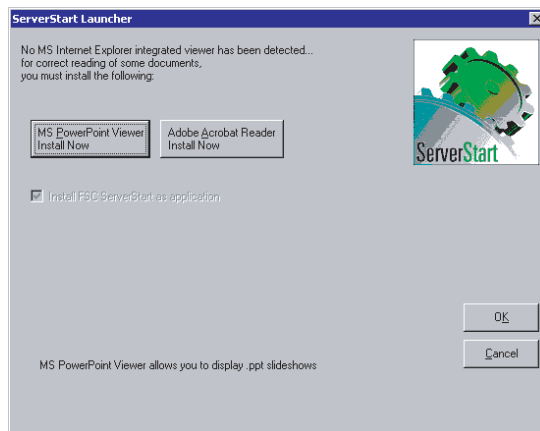
2 Click [OK].

The Windows installer starts and the Setup window appears.

3 Click [Next].

The [License Agreement] window appears.

4 Select [I accept the license agreement] and click [Next].

The [User Information] window appears.

5 Enter the user information of the software and click [Next].

The [Installation Folder] window appears.

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OS Installation Using ServerStart

6 Select the installation folder and click [Next].

To change the installation folder, click [Browse] and select the folder.

The [Select Features] window appears.
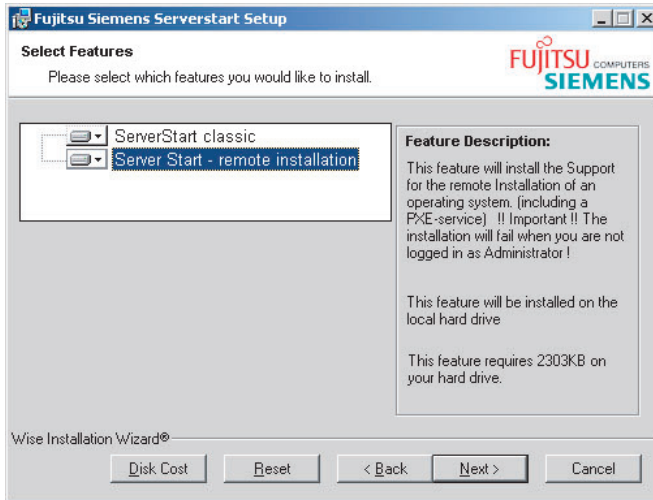
Configure [ServerStart - remote installation] so that it will be installed.

Clicking [Disk Cost] displays the following widow where you can check the amount of free space.
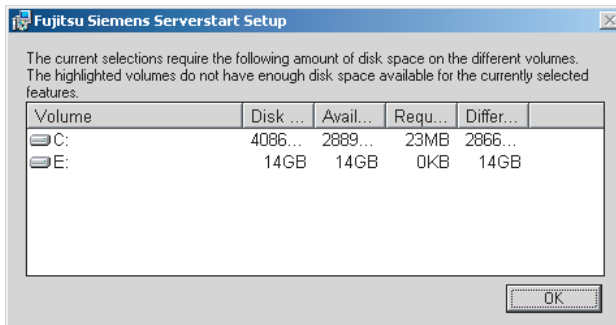
7 Click [Next].

The [contents tree] window appears.
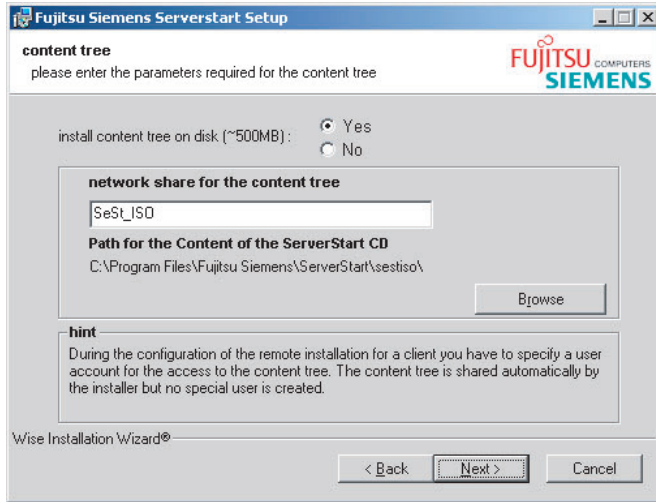
8 Configure the ServerStart image necessary for network startup (PXE) and click [Next].

The [User account for access to the content tree] window appears.
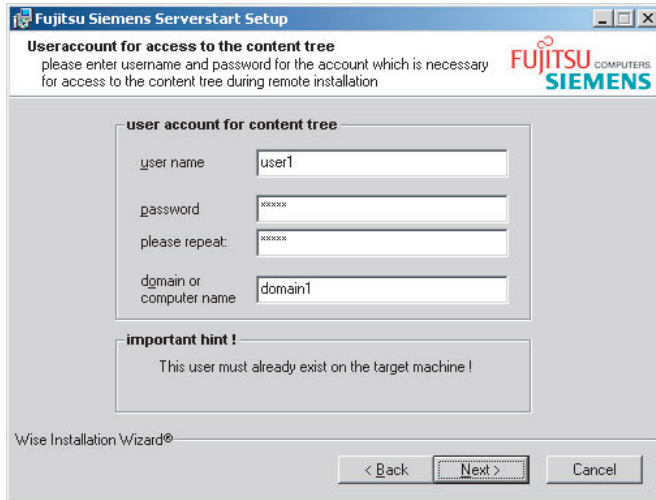
9 Specify the user account for the content tree and click [Next].

The [PXE Server] window appears.
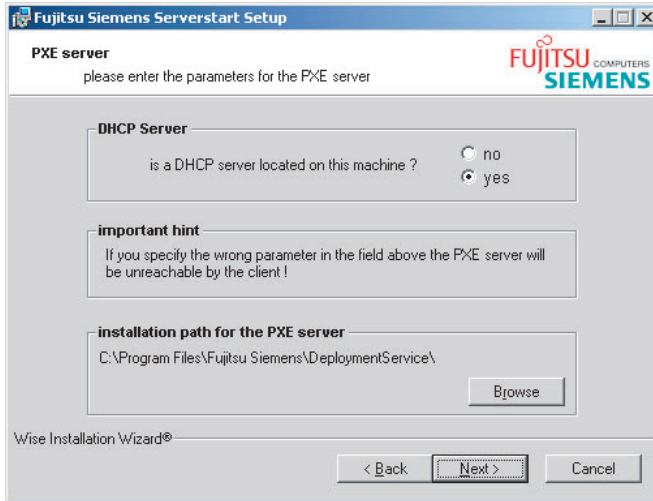
10 Select [yes] when the PXE server performs the DHCP service or select [no] when the DHCP and PXE servers are configured separately. Then click [Next].

The [PXE Server] window appears.
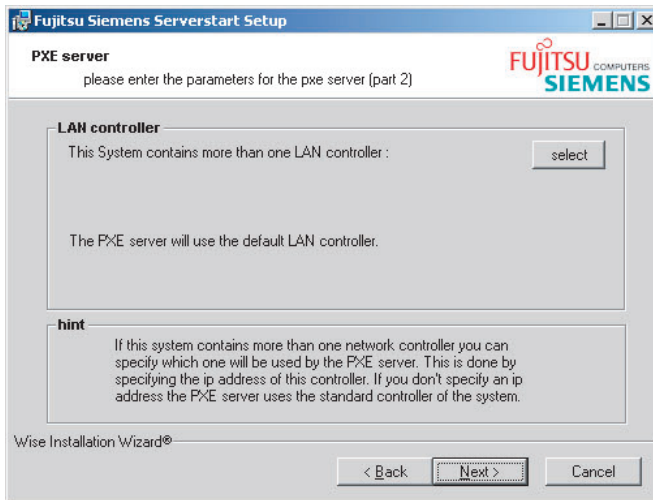
11 When there are multiple LAN ports, click [Select], select the LAN controller on the LAN controller selection screen, and click [Next].

The [Important hint] window appears.

12 Click [Next].

The [Ready to Install the Application] window appears.

13 Click [Show Readme file].

The [Readme] window appears. Read the text. When you finish, click [✖] in the upper-right corner of the window to close the [Readme] window.

14 Click [Next].

The image file is copied.

The image file copying process takes about 10 to 20 minutes.

The installation completes when the installation completion window appears.

15 Click [Start] → [Shutdown]. Select [Restart] and click [OK].

The system restarts.

■ Checking Services

● Checking [PXE Services] and [TFTP Service]

1 Right-click the [My Computer] icon and click [Manage].

2 Select [Services] from [Services and Applications].

On the Services list, check that PXE Services and TFTP Service have been installed and started.

OS Installation Using ServerStart

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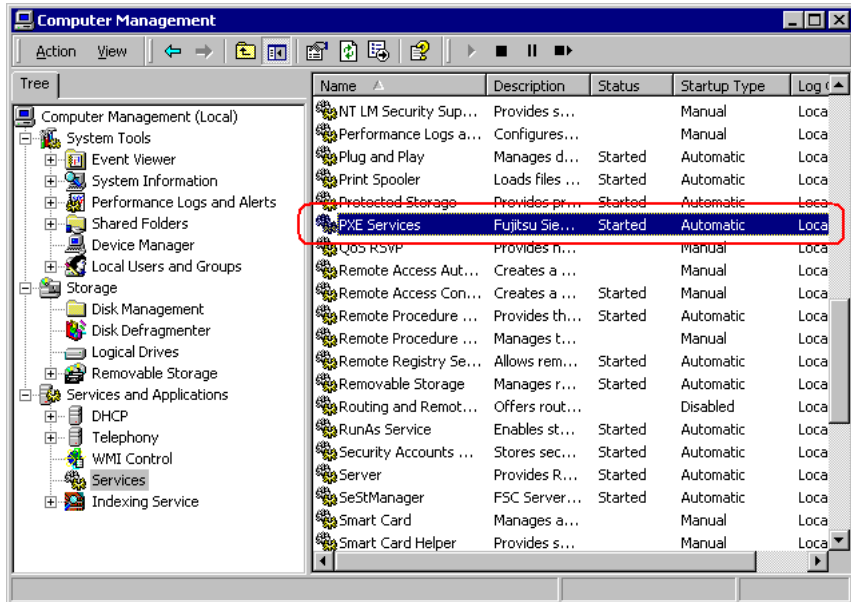
● **Checking the DHCP Service**

Perform the following check only when the PXE server performs the DHCP service.

1 On the PXE server, click [Start] → [Programs] → [Administrative Tools] →
[DHCP] to start up the DHCP administrative tool.

2 Click [Server Options] and check that the "060 ClassID" server option is added.
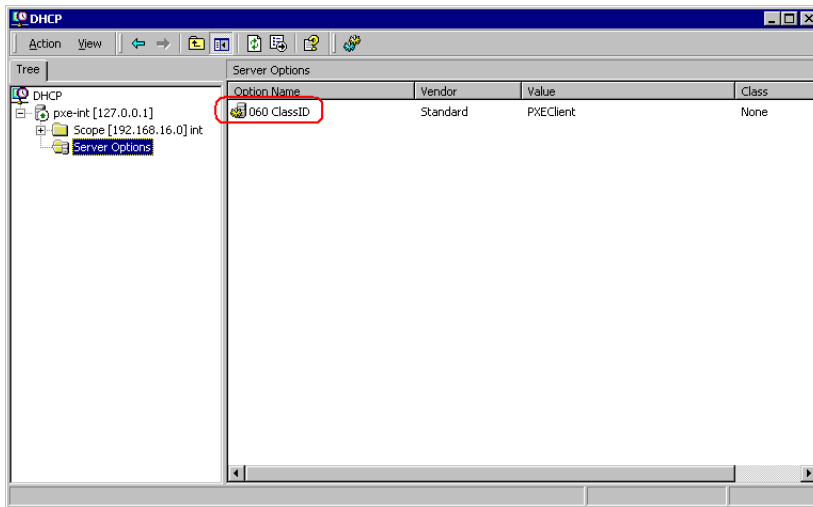
■ **Setting TFTP**

TFTP is an FTP service function that requires no authentication. In remote installation, the TFTP service
is used to distribute the boot image required for startup.
For the TFTP path, set the appropriate access rights for the Guest account to obtain the image via
network startup (PXE).

1 Click [Start] → [Programs] → [Accessories] → [Windows Explorer] and move to
the TFTP path (the default is C:\Program
Files\FujitsuSiemens\DeploymentService\tftp).

2 Right-click the TFTP folder and click [Properties].

3 Click the [Security] tab, add the Guest account, and set the "Read & Execute",
"List Folder Contents", and "Read" access permissions.
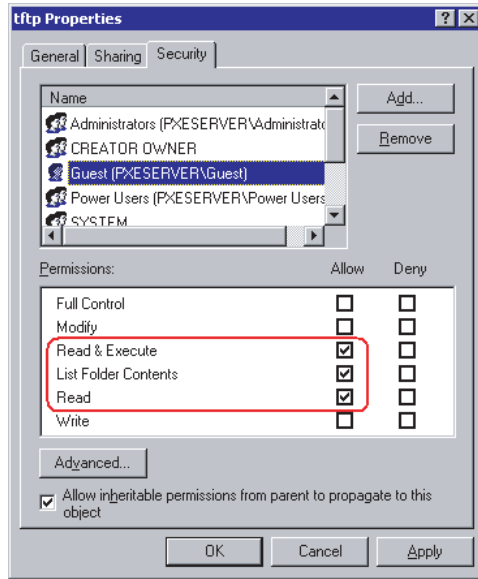
The preparation of the PXE server has been completed.
Then, perform "3.4.4 Preparation of Remote Resources" (→pg.95).

3.4.4 Preparation of Remote Resources

Store resources to be installed on the remote resource server (PXE server) before starting installation.

IMPORTANT

▶ For sharing resources, log on to the remote resource/PXE server with the Administrator account.

1 Prepare resources required for installation.
- CD-ROM for the OS to be installed
- Service Pack CD-ROM for the OS to be installed
- ServerStart floppy disk
- PRIMERGY Document & Tool CD (Disc 1) (for installing ServerView)
- Others

2 Create a shared folder for storing resources.

Create a shared folder for each CD prepared in Step 1.

E.g.: E:\W2K3Sv for Windows Server 2003

3 Extract the resources.

Using Windows Explorer, copy the CD-ROM for the resource to the shared folder.

3.4.5 Starting Remote Installation Using a PXE Server

Perform remote installation using a PXE server in the following procedures.

```
┌─────────────────────────────────────────────┐
│  Checking the Network Startup (PXE) Setting  │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│          Checking the MAC Address            │
└─────────────────────────────────────────────┘
                      ↓
(   ┌─────────────────────────────────────────┐   )
(   │     Creating a Configuration File        │   )
(   │   (Setting of remote installation)       │   )
(   └─────────────────────────────────────────┘   )
                      ↓
┌─────────────────────────────────────────────┐
│           Starting Installation              │
└─────────────────────────────────────────────┘
```
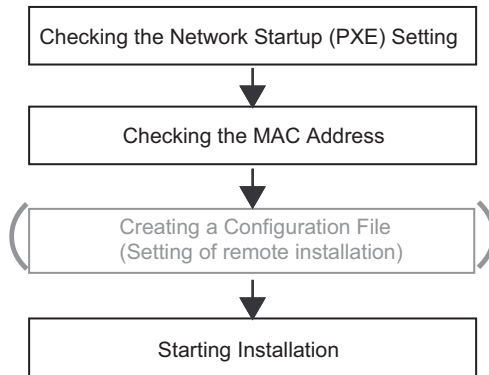
■ Checking the Network Startup (PXE) Setting

Remote installation using a PXE server is performed via the onboard LAN. Enable the network startup (PXE) of the target server.

For more details on network startup, refer to "2.1.2 Hardware Settings" (→pg.42).

■ Checking the MAC Address of the Onboard LAN

In remote installation, target servers are identified according to the MAC address. MAC addresses are unique information to LAN cards. Check the MAC address on each target server. Write down the MAC address of the onboard LAN. For details on how to check the MAC address of an onboard LAN, refer to "2.1.2 Hardware Settings" (→pg.42).

■ Creating a Configuration File

You can create a configuration file on a client computer before starting installation. For the procedure, refer to "3.2.1 Starting Up the Preconfiguration Mode" (→pg.71) and "3.2.2 Configure Settings in Wizards" (→pg.74).

When creating a configuration file on the PXE server, start installation.

◯POINT

▸ Specify the shared name prepared instead of the local CD-ROM as installation information.

■ Starting Installation

1 On the PXE server, start up ServerStart.

If ServerStart has already been started, it is not necessary to restart it.

If it is not started, click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

The [Welcome to ServerStart] window appears.

2 Click [Click here to prepare an operating system installation for a PRIMERGY Server].

The [Prepare the installation of an operating system for PRIMERGY Servers] window appears.

3 Click [Creation of a ServerStart Configuration file for the installation of an Microsoft Windows Operating System].

The [Microsoft Windows Operating System Installation] window appears.

4 Click the OS to install.

The [Preparing the Installation] window appears.

If a configuration file has already been created, go to Step 6.

5 Set items in wizards to create a configuration file.

Refer to "3.2.2 Configure Settings in Wizards" (→pg.74). Set items in wizards and save the configuration file.

Exiting a wizard returns to the preconfiguration mode window.

6 Click [Click have to initiate the Remote Installation Process].

The [Configure Remote Installation Target Server] window appears.

7 Configure remote installation.

1. Enter the "MAC address of the target system".
2. Select the "PRIMERGY model type".
3. Specify the "Configuration file" containing the installation settings.

8 Click [Start Installation].

Installation starts. All disk contents on the target server are deleted.

The [ServerStart Boot Manager] window appears.

Check that the status is "Waiting for client".
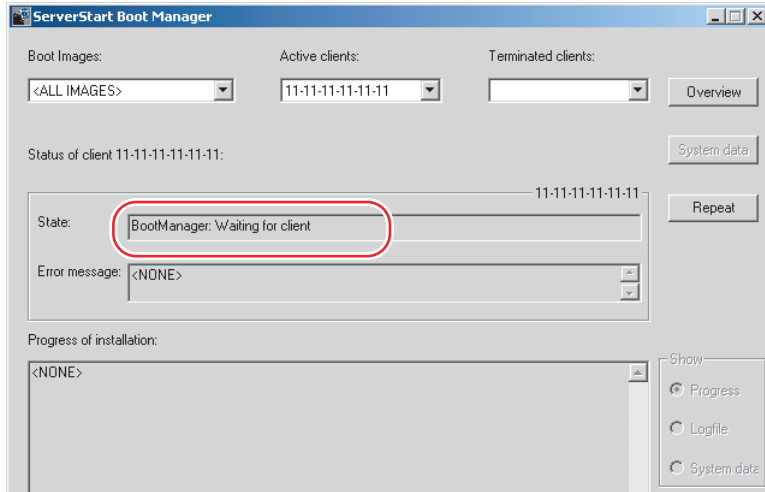
9 Turn on the target server.

It is started up via the network (PXE) and installation starts.

When the resources have been copied, the "Preparation for automatic OS installation has completed." message appears.

Subsequent installation is performed automatically.

When the installation is completed, an installation completion message appears on the target server.

10 Press any key on the target server.

11 Restart the system on the target server.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures before starting server operations.

3.4.6 Starting Remote Installation Using a Remote Resource Server

In remote installation using a remote resource server, installation is performed using shared resources on the remote resource server.

Perform "3.4.4 Preparation of Remote Resources" (→pg.95) before starting installation.

■ Configuring a Remote Floppy

A remote floppy is a shared folder for storing and using a configuration file on the network, instead of loading it from the ServerStart floppy disk. When the server does not have a floppy disk drive and installation is performed in guided mode / expert mode, use a remote floppy.

1 Create a new folder in the shared folder on the remote resource server.
    E.g.: C:\export\ServerStart\Floppy

2 Create a "ServerStart Floppy Disk" tag file for the ServerStart floppy disk. Start up Command Prompt and enter the following command.
    C:\>copy nul C:\export\ServerStart\Floppy\"ServerStart Floppy Disk"

■ Checking Remote Resources

Check that the remote resource server is shared properly.

1 Start up "Command Prompt" on the remote resource server. Enter the following and press the [Enter] key.

　prompt:>net share

Check that the created shared folder is displayed properly.

For the net command, refer to Windows Help.

■ Starting Installation

Start installation from the target server.

● In Guided Mode / Expert Mode

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Create a ServerStart floppy disk.

When the ServerStart floppy disk supplied with the server is used

1. Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].

The network startup setting window for remote installation appears.

2. Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

3. Click [Build a ServerStart Floppy Disk].

Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.

When the remote floppy is used

1. Select "Remote (media)" and click [OK].

The [Network Startup Setting] window for remote installation appears.

2. Click [OK].

The [Specify Drive] window appears.

3. Enter [Remote path], [User name], and [Password] and click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Welcome to ServerStart] window appears.

3 Click [Click here to prepare and/or initiate an operating system installation].

The [Select the operating system to be installed] window appears.

Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.

3

OS Installation Using ServerStart

4 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

5 Select the OS to install and the mode.

6 Set items in wizards and save the configuration file.

For settings in wizards, refer to "3.1 Guided Mode" (→pg.54) or "3.3 Expert Mode" (→pg.78).
Set items in wizards and save the configuration file. When using the remote floppy, specify the
path to the shared folder for the remote floppy as the configuration file saving location.

> **POINT**
> ▶ Specify the shared name of the prepared shared folder instead of the local CD-ROM as instal-
> lation source information.

7 Click [Click here, to Start the Installation of (OS)].

Installation starts. At steps where the CD-ROM for resources such as the OS to be installed is
necessary, the resource is automatically acquired from the resource server via the network.

8 Eject the CD-ROM and floppy disk and click [OK].

The system restarts. When the installation is completed, an installation completion message
appears on the target server.

9 Press any key on the target server.

10 Restart the system on the target server.

The server setup and OS installation have been completed.
Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures
before starting server operations.

● **In Preconfiguration Mode**

1 Create a configuration file.

For the creation procedure, refer to "3.2 Preconfiguration Mode" (→pg.71).

> **POINT**
> ▶ Specify the shared name of the prepared shared folder instead of the local CD-ROM as instal-
> lation source information.

2 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

3 Set the created configuration file and click [OK].

The [Initializing of ServerStart] window appears and unattended installation will be started.
Depending on the hardware configuration, this process may take a few minutes. When the
process is completed, the [ServerStart Unattended Mode] window appears.

4 Click [Start].

Installation starts. At steps where the CD-ROM for resources such as the OS to be installed is necessary, the resource is automatically acquired from the resource server via the network.

5 Eject the CD-ROM and floppy disk and click [OK].

The system restarts. When the installation is completed, an installation completion message appears on the target server.

6 Press any key on the target server.

7 Restart the system on the target server.

The server setup and OS installation have been completed.
Refer to "Chapter 5 Operations after OS Installation" (→pg.127) and perform necessary procedures before starting server operations.

3

OS Installation Using ServerStart

3.5 Installation on Multiple (the Second and Subsequent) Servers

This chapter explains how to perform installation on multiple servers using ServerStart.
By editing the configuration file created for installation on the first server, you can use it for installation on other servers of the same model and configuration. This reduces the setup time. However, installation on the first server must be performed using ServerStart in guided mode or preconfiguration mode.

IMPORTANT

▶ Check that ServerStart supplied with the first server is of the same version as that supplied with the other servers. If the version is different, this installation method will not work.

3.5.1 Preparation for Installation

■ Required Software

The following software is required for installation on the second and subsequent servers. Be sure to have these items close at hand.

- CD-ROM for the OS to be installed
- ServerStart CD-ROM
- ServerStart floppy disk

    A: ServerStart floppy disk containing the configuration file used for installation on the first server

    B: ServerStart floppy disks supplied with the ServerStart CD-ROMs for the second and subsequent servers

    If ServerStart floppy disks are not supplied, prepare as many floppy disks as there are servers.

- PRIMERGY Document & Tool CD (Disc 1) (for installing ServerView)
- Service Pack CD-ROM for the OS to be installed

■ Preparatory Procedure

Perform the following procedure before installation.
Using Explorer or Command Prompt, copy the ServerStart floppy disk (A) to the ServerStart floppy disk (B).

3.5.2 Installation in Guided Mode

Edit the configuration file and perform installation in guided mode.

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Insert the ServerStart floppy disk copied in the preparatory procedure into the floppy disk drive and click [Create].

The network setting window for remote installation appears.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

4 Click [or Insert a ServerStart Floppy Disk to Start ServerStart].

The [Welcome to ServerStart] window appears.

5 Click [Click here to prepare and/or initiate an operating system installation].

The [Select the operating system to be installed] window appears.

6 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

7 Click the OS to install.

8 Click [Prepare & initiate an unattended installation of (OS)].

The guided mode starts.

9 Click [Start have to create a complete configuration file].

The [Open ServerStart Configuration File] window appears.

10 Specify "SerStartBatch.ini" on drive A and click [Create].

The display returns to the guided mode window.

For procedures from setting wizards to completion of installation, refer to "3.1 Guided Mode" (→pg.54).

When performing remote installation, refer to "3.4 Remote Installation" (→pg.85).

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OS Installation Using ServerStart

IMPORTANT

Settings values in wizards

▶ Setting items in wizards are set to the values set on the first server. For installation on subsequent servers, you must change the following items in the "OS installation wizard". For other items, change the settings as necessary. You do not need to start up wizards where no settings will be changed.

table: Settings to be Changed for Installation on Subsequent Servers

Window name	Setting item name	Remarks
User Information	Computer name	The setting must be changed when the second and subsequent servers are on the same network as the first server.
	Product ID/CD key	The setting must be changed.
Network Protocol	IP address	The setting must be changed when the second and subsequent servers are on the same network as the first server.

▶ If the settings for the first server are not reflected to wizards, perform the procedures from copying the floppy disk over again.

3.5.3 Installation in Preconfiguration Mode

Edit the configuration file and perform installation in preconfiguration mode.

If ServerStart is not installed in the client computer where the preconfiguration mode is executed, refer to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.49) to install ServerStart. If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.51).

IMPORTANT

▶ ServerStart starts up when it is installed. However, be sure to follow these installation procedures. Performing the procedure in "3.2.1 Starting Up the Preconfiguration Mode" (→pg.71) deletes the contents of the ServerStart floppy disk, making the disk unavailable for installation on multiple servers.

1 Start up ServerStart.

If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

When the CD has been copiedon Windows 2000 Professional/Windows XP Professional

1. Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

1. Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.

ServerStart starts up and the [Welcome to ServerStart] window appears.

2 Select the OS to install.

The preconfiguration mode starts up.

3 Insert the ServerStart floppy disk copied in the preparatory procedure into the floppy disk drive and click [Start here to configuration file].

The [Open ServerStart Configuration File] window appears.

4 Specify "SerStartBatch.ini" on drive A and click [Create].

The display returns to the preconfiguration mode window.

For procedures from setting wizards to completion of installation, refer to "3.2 Preconfiguration Mode" (→pg.71).

When performing remote installation, refer to "3.4 Remote Installation" (→pg.85).

IMPORTANT

Settings values in wizards

▶ Setting items in wizards are set to the values set on the first server. For installation on subsequent servers, you must change the following items in the "OS installation wizard". For other items, change the settings as necessary. You do not need to start up wizards where no settings will be changed.

table: Settings to be Changed for Installation on Subsequent Servers

Window name	Setting item name	Remarks
User Information	Computer name	The setting must be changed when the second and subsequent servers are on the same network as the first server.
	Product ID/CD key	The setting must be changed.
Network Protocol	IP address	The setting must be changed when the second and subsequent servers are on the same network as the first server.

▶ If the settings for the first server are not reflected to wizards, perform the procedures from copying the floppy disk over again.

3

OS Installation Using ServerStart

Chapter 4

Manual OS Installation

This chapter explains how to install the OS
without using ServerStart.

4.1 Creating Driver Disks

When installing the OS manually, it is necessary to create driver installation disks beforehand. Also, driver disks must be created when you add an expansion card during server operation.

■ Preparation for Creating Driver Disks

You need floppy disks for driver disks. A floppy disk is necessary for each driver.
Driver disks are created using the ServerStart FloppyBuilder function. The FloppyBuilder function is available in the following environments.

- Starting up the ServerStart system on a client computer (Recommended)
- Starting up the system from the ServerStart CD-ROM on the server

◯POINT

▶ When creating driver disks on a client computer, it is necessary to install ServerStart on the client computer beforehand. Install it according to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.49).
If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.51).

IMPORTANT

▶ The FloppyBuilder function may not operate correctly if you start up ServerStart while ServerStart of a different version is installed in the computer. Make sure to uninstall a different version of ServerStart.

4.1.1 Required Driver Disks

The driver disks to be created differ depending on the OS to be installed.

■ For Windows Server 2003

table: Drivers Required for Installing Windows Server 2003

Expansion card / onboard controller	Driver
Chipset	Intel Chipset E7520 Ver6.2.0.1005
Graphic controller	Standard driver provided with the OS
Onboard SCSI array controller	PRIMERGY RX200 S2 Onboard SCSI Driver Windows 2003 Drivers Disk V1.0L10 [1]
RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3)	PG-142E3 Driver Windows 2000/2003 Drivers Disk V3.0L10 [1]
SCSI Ctrl U160 lp (PG-130L)	Standard driver provided with the OS
Onboard LAN	PG-1852/1862/188x/189x LAN Driver for Windows 2003 Ver8.3 [1]
LAN card (PG-1852/PG-1862/ PG-1882L/PG-1892L)	
Fibre Channel Controller (PG-FC106)	PG-FC106 Windows 2000/2003 Drivers Disk V5.10a10 [1]
Other expansion cards	Driver supplied with the expansion card

*1: Created from the ServerStart CD-ROM

■ For Windows 2000 Server

table: Drivers Required for Installing Windows 2000 Server

Expansion card / onboard controller	Driver
Chipset	Intel Chipset E7520 Ver6.2.0.1005
Graphic controller	PRIMERGY RX200 S2 Onboard VGA Driver Ver5.0.2195.5005
Onboard SCSI array controller	PRIMERGY RX200 S2 Onboard SCSI Driver Windows 2000 Drivers Disk V1.0L10 [1]
RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3)	PG-142E3 Driver Windows 2000/2003 Drivers Disk V3.0L10 [1]
SCSI Ctrl U160 lp (PG-130L)	Standard driver provided with the OS
Onboard LAN	PG-1852/1862/188x/189x LAN Driver for Windows 2000 Ver8.3 [1]
LAN card (PG-1852/PG-1862/ PG-1882L/PG-1892L)	
Fibre Channel Controller (PG-FC106)	PG-FC106 Windows 2000/2003 Drivers Disk V5.10a10 [1]
Other expansion cards	Driver supplied with the expansion card

*1: Created from the ServerStart CD-ROM

◯ POINT

▶ The latest drivers, refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

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4.1.2 How to Create Driver Disks

Driver disks are created from the ServerStart CD-ROM using the ServerStart FloppyBuilder function. If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

■ Starting ServerStart

● For Creation on a Client Computer

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

1 Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

1 Insert the ServerStart CD-ROM into the client computer.

ServerStart starts up and the [Welcome to ServerStart] window appears.

● For Creation on the Server

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Insert the attached "ServerStart floppy disk" into the server's floppy disk drive. Then make sure "Removable media" and "A:" are selected and click [Create].

A network setup window for remote installation appears.

♀POINT

▶ If a configuration file already exists in the ServerStart floppy disk and [OK] is clicked without clicking [Create], the [ServerStart Unattended Mode] window appears. Make sure to click [Exit]. The [Welcome to ServerStart] window appears.
If [Start] is clicked in the [ServerStart Unattended Mode] window, the installation of the server will start and all disk contents will be deleted.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

4 Click [or Insert a ServerStart Floppy Disk to Start ServerStart].

The [Welcome to ServerStart] window appears.

5 Eject the ServerStart floppy disk.

■ Creating Driver Disks

Start up ServerStart and confirm that the [Welcome to ServerStart] window is displayed.

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1 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.
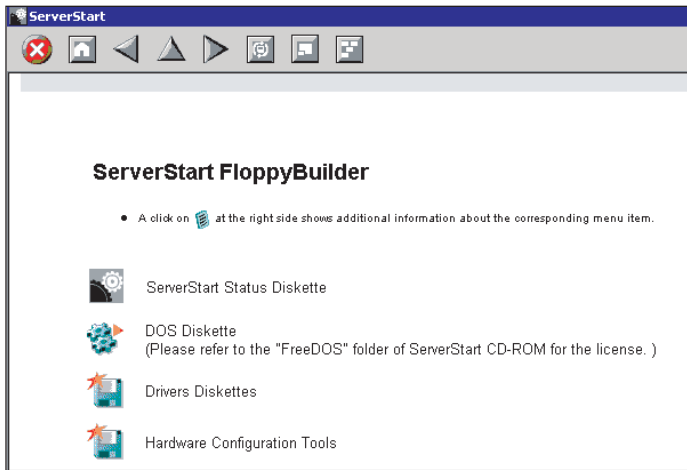
2 Click [Drivers Diskettes].

The [FloppyBuilder Driver Disk] window appears.

3 Click the type of the driver you want to create.

4 Click the driver disk you want to create.

Follow the message and insert a floppy disk.

5 Perform the subsequent operations according to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.
The driver disk is automatically created. When a message appears indicating that creating the
disk is completed, click [OK] and eject the disk.

4.2 Starting Manual Installation

This section explains the procedures for installing the OS manually.

4.2.1 Installing Windows Server 2003

1 Create driver disks.

Prepare necessary drivers before installing Windows Server 2003.

Some drivers are created from the ServerStart CD-ROM. For how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.110).

2 Insert the Windows Server 2003 CD-ROM.

Turn on the server and insert the Windows Server 2003 CD-ROM immediately into the CD-ROM drive. Check there are no floppy disks in the floppy disk drive. When the active area is specified on the hard disk, the following message appears.

```
Press any key to boot from CD....
```

Pressing any key while this message is displayed boots the system from the CD-ROM.

3 The [Windows Server 2003 Setup] window appears.

Immediately, the following message appears at the bottom of the window. Press the [F6] key.

```
Press F6 if you need to install a third party
SCSI or RAID driver ...
```

IMPORTANT

▶ This message will be displayed for a short time after the setup window (blue screen) appears. Press the [F6] key immediately after the window turns blue.

4 Install the drivers manually.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows,
including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

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2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the onboard SCSI array controller driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use with
Windows, using a device support disk provided by an
adapter manufacturer.
Select the SCSI Adapter you want from the following list,
or press ESC to return to the
previous screen.
```

3. Select the following and press the [Enter] key.

```
LSI Logic PCI SCSI/FC MPI Miniport Driver
```

4. When the following message appears, press the [S] key.

```
The driver you provided seems to be newer than the Win-
dows default driver.
```

5 When a Fibre Channel Controller (PG-FC106) is installed, install the fibre channel card driver.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows
, including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the fibre channel card driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use with
Windows, using a device support disk provided by an
adapter manufacturer.
Select the SCSI Adapter you want from the following list,
or press ESC to return to the
previous screen.
```

3. Select the following and press the [Enter] key.

```
Emulex LP9802 PCI-Fiber Channel HBA
```

4. When the following message appears, press the [S] key.

```
The driver you provided seems to be newer than the
Windows default driver.
```

6 Follow the instructions from the setup program to continue the installation procedures.

If a message indicating that the driver has failed in the Windows logo test for validating the compatibility with Windows appears, select [Yes] to continue the installation procedure.

7 Install the chipset driver.

1. Insert the ServerStart CD-ROM into the drive of the server.

   When the ServerStart window appears, exit ServerStart.

2. Execute the following command on the ServerStart CD-ROM.

   [CD-ROM drive] :\DRIVERS\ChipSet\Intel\infinst_autol.exe

   The installation wizard starts up.

3. Click [Next]. Follow instructions in the window to perform installation.

4. When the "InstallShield(R) wizard has completed." message appears, eject the ServerStart CD-ROM from the CD-ROM drive and click [Finish] to restart the system.

8 Install the LAN driver.

Install the LAN driver using the driver disk created from the ServerStart CD-ROM. For more details, refer to "4.3 Installing the LAN Driver" (→pg.121).

9 When a SCSI array controller is used for an array configuration or a RAID card is installed, install RAID Management Tool.

For the installation procedure, refer to "PRIMERGY RX200 S2 Onboard SCSI RAID User's Guide" or the manual supplied with the RAID card.

The installation of Windows Server 2003 has completed.

● **Before Starting Operation**

After OS installation, refer to the following and perform the necessary procedures.

• High reliability tool installation

  To ensure stable server operation, refer to "Chapter 6 High Reliability Tools" (→pg.159) and install high-reliability tools.

• "Chapter 5 Operations after OS Installation" (→pg.127)

  Perform the necessary procedures.

4.2.2 Installing Windows 2000 Server

1 Create driver disks.

Prepare necessary drivers before installing Windows 2000 Server.

Some drivers used with Windows 2000 Server are created from the ServerStart CD-ROM. For how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.110).

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2 Insert the Windows 2000 Server CD-ROM.

Turn on the server and insert the Windows 2000 Server CD-ROM immediately into the CD-ROM drive. Check there are no floppy disks in the floppy disk drive. When the active area is specified on the hard disk, the following message appears.

```
Press any key to boot from CD....
```

Pressing any key while this message is displayed boots the system from the CD-ROM.

3 The [Windows 2000 Server Setup] window appears.

Immediately, the following message appears at the bottom of the window. Press the [F6] key.

```
Press F6 if you need to install a third party SCSI or RAID
driver ...
```

IMPORTANT

▶ This message will be displayed for a short time after the setup window (blue screen) appears.
Press the [F6] key immediately after the window turns blue.

4 Install the drivers manually.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows 2000,
including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use
with Windows 2000, using a device support disk
provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following
list, or press ESC to return to the previous screen.
```

3. Select the following and press the [Enter] key.

```
LSI Logic PCI SCSI/FC MPI Miniport Driver
```

4. Follow the window instructions to perform installation.
When a message prompting you to insert a floppy disk appears, insert the proper driver disk and press the [Enter] key.

POINT

▶ Repeat these procedures to install a driver for another card.

5 Follow the instructions from the setup program to continue the installation procedures.

IMPORTANT

Cautions on Restarting

▶ In the course of installation, a message appears to indicate that the setup program restarts. Wait until it restarts automatically.

6 Install the chipset driver.

1. Insert the ServerStart CD-ROM into the drive of the server.

   When the ServerStart window appears, exit ServerStart.

2. Execute the following command on the ServerStart CD-ROM.

   [CD-ROM drive]:\DRIVERS\ChipSet\Intel\infinst_autol.exe

   The installation wizard starts up.

3. Click [Next]. Follow instructions in the window to perform installation.

4. When the "InstallShield(R) wizard has completed." message appears, eject the ServerStart CD-ROM from the CD-ROM drive and click [Finish] to restart the system.

7 Install the LAN driver.

Install the LAN driver using the driver disk created from the ServerStart CD-ROM. For more details, refer to "4.3 Installing the LAN Driver" (→pg.121).

8 Install the display driver.

1. Insert the ServerStart CD-ROM into the drive of the server.

   When the ServerStart window appears, exit ServerStart.

2. Right-click the [My Computer] icon on the desktop and click [Manage] from the displayed menu.

3. Click [Device Manager] from the displayed list.

4. Double-click [ATI Technologies Inc. RAGE XL PCI] under [Display Adapter].

   The properties window appears.

5. Click the [Driver] tab and click [Update Driver].

   The [Start Device Driver Upgrade] window appears.

6. Click [Next].

   The [Install Hardware Device Driver] window appears.

7. Select [Find an optimum driver (Recommended)] and click [Next].

   The [Identify Driver File] window appears.

8. Select [CD-ROM drive] in [Search location options] and click [Next].

9. When a message indicating that the driver has been found appears in the [Find Driver File] window, click [Next].

   When the installation is completed, a completion message appears.

10. Click [Finish].

11. Click [Close] to close the properties window.

12. Eject the ServerStart CD-ROM from the CD-ROM drive and restart the system to make the settings effective.

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9 After driver installation, apply Windows 2000 Service Pack.

For details, refer to the description in the window.

Drivers may be replaced with those in the Service Pack during Service Pack application. For more details, refer to the manual supplied with the hardware.

10 When a SCSI array controller is used for an array configuration or a RAID card is installed, install RAID Management Tool.

For the installation procedure, refer to "PRIMERGY RX200 S2 Onboard SCSI RAID User's Guide" or the manual supplied with the RAID card.

The installation of Windows 2000 Server has completed.

● Before Starting Operation

After OS installation, refer to the following and perform the necessary procedures.

- Installation of high reliability tools

  To ensure stable server operation, refer to "Chapter 6 High Reliability Tools" (→pg.159) and install high reliability tools.

- "Chapter 5 Operations after OS Installation" (→pg.127)

  Perform the necessary procedures.

4.2.3 Installing Linux

For the use of Linux, refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

4.3 Installing the LAN Driver

This section explains the procedure for installing the driver.
In addition to the case where the OS is installed manually, the driver must be installed when a LAN card is added.

4.3.1 Installing the LAN Driver (Windows Server 2003)

The LAN driver installation procedure differs depending on whether the network adapter was recognized during the OS installation.

🔎POINT

▶ For the following LAN cards, the network adapter is recognized when the card is mounted during OS installation.
  • PG-1852
  • PG-1862

1 Click [Start] → [Administrative Tools] → [Computer Management].

2 Click [Device Manager].

On the Device Manager list, check if a recognized network adapter is present.

(Window example)
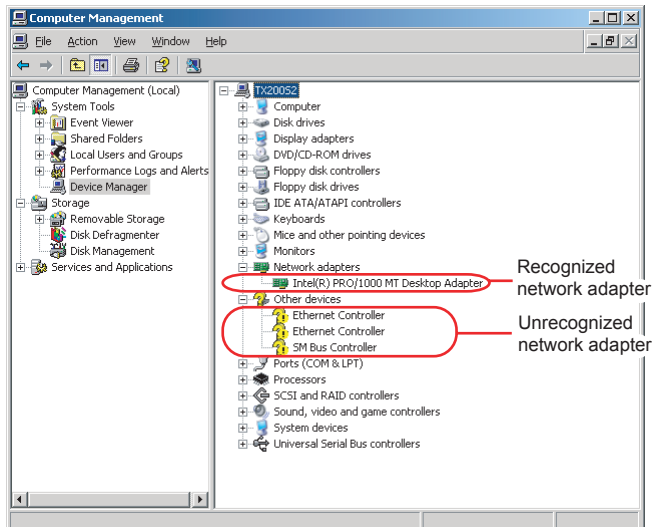
When a recognized network adapter is present, [Network adapters] appears.

• When a recognized network adapter is present

Perform "■ Updating LAN Drivers" (→pg.122) on the LAN device name under [Network adapters], then "■ Installing the LAN Driver" (→pg.123) on [Ethernet controller] under [Other devices].

- When a recognized network adapter is not present

  Perform "■ Installing the LAN Driver" (→pg.123) on [Ethernet controller] under [Other devices].

POINT

When the LAN driver is installed to [Other devices] before updating the driver for the network adapter recognized immediately after the OS installation

▶ When driver installation starts, the following window appears.
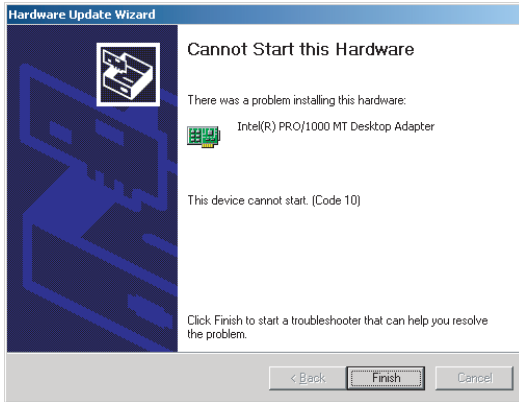
Clicking [Finish] displays the [Help and Support Center] window. Click [X] to close the window.

After installation, the "!" mark is displayed at the LAN device name in Device Manager. Device names are displayed properly when all LAN drivers are installed and the system is restarted.

■ Updating LAN Drivers

Perform the following procedures on all LAN device names under [Network adapters] in [Device Manager].

1 Double-click a LAN device name under [Network adapters].

POINT

▶ Names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter

2 Insert the driver disk created from the ServerStart CD-ROM into the server.

3 Click [Update Driver] in the [Driver] tab window.

The [Welcome to the Hardware Update Wizard] window appears.

4 Select [Install the software automatically (Recommended)] and click [Next].

The driver will be installed.

5 Click [Finish].

6 Click [Close] to close the properties window.

■ Installing the LAN Driver

Perform the following procedures on each [Ethernet controller] under [Other devices] in [Device Manager].

1 Insert the driver disk created from the ServerStart CD-ROM into the server.

2 Double-click [Ethernet controller] under [Other devices].
The properties window for the Ethernet controller appears.

3 Click [Reinstall Driver] in the [General] tab window.
The [Welcome to the Hardware Update Wizard] window appears.

4 Select [Install the software automatically (Recommended)] and click [Next].
The driver will be installed.

5 Click [Finish].

6 Click [Close] to close the properties window.

7 Eject the driver disk and restart the system.

POINT

▸ After LAN driver installation, names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
Onboard LAN (1000BASE-T)	Intel(R) PRO/1000 MT Dual Port NetWork Connection
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter
PG-1882L	Intel(R) PRO/1000 MF Server Adapter (LX)
PG-1892L	Intel(R) PRO/1000 MT Server Adapter

4.3.2 Installing the LAN Driver (Windows 2000 Server)

1 Insert the driver disk created from the ServerStart CD-ROM into the server.

2 Right-click the [My Computer] icon on the desktop and select [Manage] from the displayed menu.

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3 Click [Device Manager].

As many [Ethernet controller] items as the installed LAN ports are displayed under [Other devices].

Double-click each [Ethernet controller] item and perform the following Steps 4 to 11 on all LAN ports.

4 Double-click [Ethernet controller] under [Other devices].

The properties window for the Ethernet controller appears.

5 Click [Reinstall Driver] in the [General] tab window.

The [Device Driver Upgrade Wizard] window appears.

6 Click [Next].

7 Select [Install an optimum driver (Recommended)] and click [Next].

The [Identify Driver File] window appears.

8 Select [Floppy disk drive] in [Search location options] and click [Next].

Detected drivers are displayed.

9 Click [Next].

Driver installation starts. When it is completed, a completion window appears.

10 Click [Finish].

11 Click [Close] to close the properties window.

POINT
- When [Ethernet controller] items are displayed under [Other devices], perform the above Steps 4 to 11 on all [Ethernet controller] items.

12 Eject the driver disk and restart the system.

POINT
- After LAN driver installation, names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
Onboard LAN (1000BASE-T)	Intel(R) PRO/1000 MT Dual Port NetWork Connection
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter
PG-1882L	Intel(R) PRO/1000 MF Server Adapter (LX)
PG-1892L	Intel(R) PRO/1000 MT Server Adapter

■ When a LAN Card is Added

The following window may appear at system startup after addition of a LAN card. Perform the appropriate procedure according to the displayed window.

- When the "New Hardware Detection Wizard" window appears

    Insert the driver disk created from the ServerStart CD-ROM and perform Step 6 and subsequent steps in "Updating LAN Drivers".

- When the [Insert Disk] window prompts you to insert the "Intel PRO Adapter CD-ROM or floppy disk" or "Intel® PRO/1000 Disk Driver".

    Insert the driver disk created from the ServerStart CD-ROM and install the driver.

IMPORTANT

- ▶ The "Digital signature was not found" message may appear. If it appears, click [Yes] to continue the operations.
- ▶ When the [Overwriting the Files] window appears, normally do not overwrite the files (select [Do not overwrite all files]).

4.3.3 Latest Drivers

The latest drivers, refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

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Chapter 5

Operations after OS Installation

This chapter explains the operations to be performed after OS installation. Be sure to perform these operations before operating the server.

5.1 Memory Dump/Paging File Setting

Before start operating this server, configure the setting for obtaining memory dump. The setting procedure varies between Windows Server 2003 and Windows 2000 Server.

● Memory Dump

If memory dump is set, debugging information will be automatically saved when a STOP error (fatal system error) occurs in the system. Using the saved memory dump, error cause can be analyzed.
If the amount of installed memory is large, pay special attention when setting the memory dump file.The settings for obtaining memory dump should be configured after installing the files to be used for operations (OS, applications, etc.).

5.1.1 How to Obtain Memory Dump For Windows Server 2003

Check the following settings before starting configuration to obtain memory dump.

■ Checking Hard Disk Free Space

To obtain memory dump, sufficient hard disk capacity is required for creating paging files and memory dump files.
The obtainable dump types and required hard disk capacity are as follows.

● Complete Memory (Full) Dump

When the system unexpectedly stops, contents of the whole system memory are recorded. The file is stored in the directory displayed in the [Dump file] box.
- Paging file: Installed physical memory + 11MB (Recommended: Installed physical memory x 1.5)
- Memory dump file: Same amount as installed physical memory

● Kernel Memory Dump

Information of only kernel memory space is recorded. The file is stored in the directory displayed in the [Dump file] box. Capacity required for kernel memory dump is as follows.
- Paging file: Depending on installed physical memory amount
  For memory of 256 to 1,373MB - Installed physical memory x 1.5
  For memory of 1,374MB or more - 32-bit system: 2GB+16MB,
  64-bit system: RAM size + 128MB
- Memory dump file: Depending on the used amount of kernel-mode address space during STOP

● Small Memory Dump

Minimum amount of useful information for problem identification is recorded. If this option is specified, a new file is created each time the system unexpectedly stops.

History of such files is stored in the directory displayed in [Small dump directory].

- Paging file: 2MB or more
- Memory dump file: 64KB or 128KB

■ Memory Dump File Setting

Set up the memory dump file according to the following procedures.

1 Log on to the server with administrator privileges.

2 Check free space of the drive where the memory dump file is to be stored.

Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.128).

If the drive has no free space, refer to "■ Cannot Collect the Memory Dump" (→pg.263).

3 Click [Start] → [Control Panel] → [System].

The [System Properties] window appears.

4 Click the [Advanced] tab and click [Settings] in [Startup and Recovery].

The [Startup and Recovery] window appears.

5

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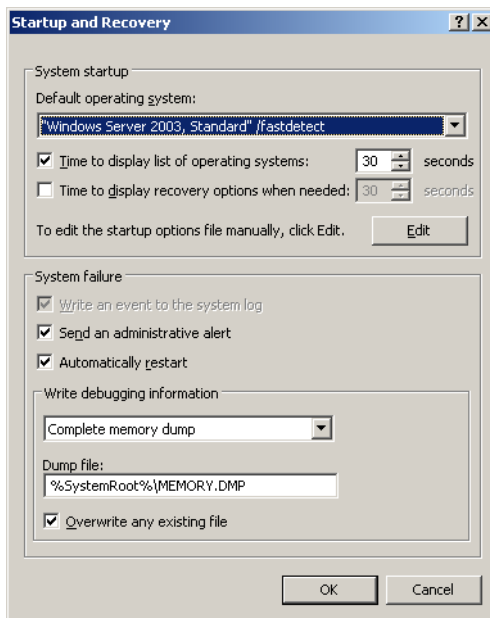
5 Set as follows.

  1. In the [Write debugging information] section, select the memory dump file type.

    • Small memory dump (64KB)
    Minimum information is recorded to the memory dump file.
    Each time a fatal error occurs, a new file is created in the directory specified in [Small dump directory].

    • Kernel memory dump
    Only kernel memory is recorded to the memory dump file.

    • Complete memory dump (Recommended)
    The whole system memory information is recorded to the memory dump file.

  2. In [Dump file] or [Small dump directory], specify the directory to save the memory dump file, with its full path.

    In case of kernel memory dump or complete memory dump, if [Overwrite any existing file] is checked, debugging information is overwritten to the specified file every time.

6 Click [OK] to close the [Startup and Recovery] window.

7 Click [OK] to close the [System Properties] window.

8 Restart the system.
The setting is enabled after the system is restarted.

■ Paging File Setting

Set up the paging file according to the following procedures.

1 Log on to the server with administrator privileges.

2 Check free space of the drive where the system is installed.
Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.128).
If the drive has no free space, refer to "■ Cannot Collect the Memory Dump" (→pg.263).

3 Click [Start] → [Control Panel] → [System].
The [System Properties] window appears.

4 Click the [Advanced] tab and click [Settings] in [Performance].
The [Performance Options] window appears.

5 Click the [Advanced] tab.
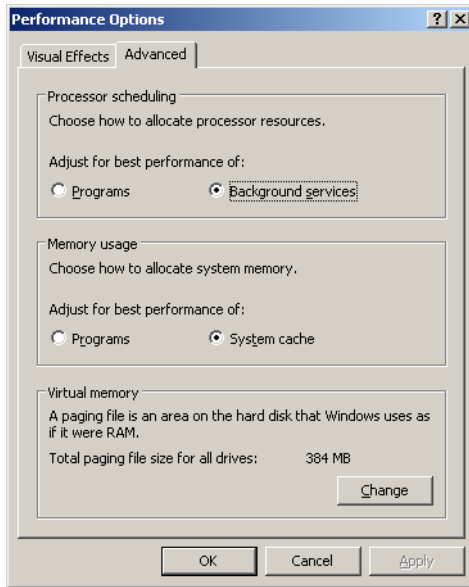
6 Click [Change] in the [Virtual memory] section.
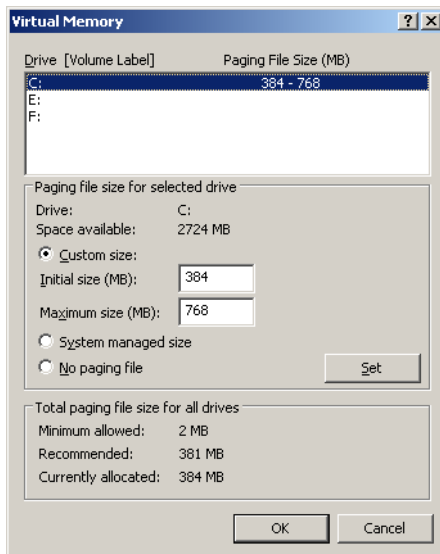
The [Virtual Memory] window appears.

7 Specify the drive where the paging file is to be created.

In [Drive], select the drive where the system is installed.

The selected drive is displayed in [Drive] in [Paging file size for selected drive].

8 Select [Custom size] and enter a value in [Initial size].

The value depends on the type of the set dump file.

Specify a value larger than the value shown in [Recommended] in [Total paging file size for all drives].

> **IMPORTANT**
>
> ▸ When a smaller value is specified for the paging file size, performance may be affected. For maximum system efficiency, be sure to set [Initial size] with a value larger than the [Recommended] size described in [Total paging file size for all drives]. The recommended size is total memory installed in the system x 1.5. However, if a program consuming a large amount of memory is regularly used, set a larger size as required.

9 Enter a value in [Maximum size].

Specify a value larger than the [Initial size].

10 Save the settings.

Click [Set] in the [Paging file size for selected drive] section.

The settings are saved, and the value specified is displayed in [Paging File Size] of [Drive].

11 Click [OK] to close the [Virtual Memory] window.

12 Click [OK] to close the [Performance Options] window.

13 Click [OK] to close the [System Properties] window.

14 Restart the system.

The setting is enabled after the system is restarted.

5.1.2 How to Obtain Memory Dump For Windows 2000 Server

Check the following settings before starting configuration to obtain memory dump.

■ Checking Hard Disk Free Space

Once memory dump is obtained, a file containing contents of the whole physical memory installed in the system is created. Before storing the dump file, confirm that there is sufficient free space in hard disk. The obtainable dump types and required hard disk capacity are as follows.

● Complete Memory (Full) Dump

When the system unexpectedly stops, contents of the whole system memory are recorded. If this option is selected, space to retain the paging file as large as the whole physical memory x 1.3 is required in the boot volume.

• Included information

Common header, all virtual address pages that are not paged out during STOP

• Required size

Installed physical memory x 1.3

● Kernel Memory Dump

Information of only kernel memory space is recorded. When the system unexpectedly stops, the process that records information to the log file is speeded up. According to the amount of memory installed in the server, available area of 50 to 800MB is required for the paging file in the boot volume.

• Included information

Common header, summary dump header (complete memory dump) - (user process space page) - (cache region page) - (unused pool region page)

• Required size

Depending on the used amount of kernel-mode address space during STOP

● Small Memory Dump

Minimum amount of useful information for problem identification is recorded. In this option, a paging file of at least 2MB is required in the boot volume. Also, a new file is created each time the system unexpectedly stops.

History of such files is stored in the directory displayed in [Small dump directory] (usually, C:\winnt\minidump).

• Included information

Common header, minidump header, kernel module, memory information, processor information, process information, thread information, stuck page, unloaded module information

• Required size

2MB or more

■ Memory Dump File Setting

Set up the memory dump file according to the following procedures.

1 Log on to the server with administrator privileges.

2 Check free space of the drive where the memory dump file is to be stored.

Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.132).

If the drive has no free space, refer to "■ Cannot Collect the Memory Dump" (→pg.263).

3 Click [Start] → [Settings] → [Control Panel].

4 Double-click the [System] icon.

The [System Properties] window appears.

5

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5 Click the [Advanced] tab and click [Startup and Recovery].

The [Startup and Recovery] window appears.
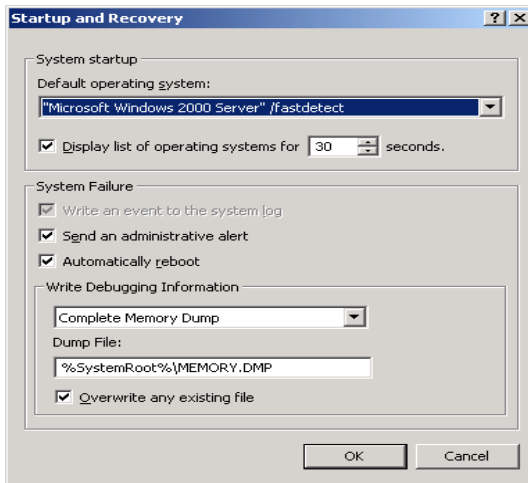
6 Set as follows.

    1. In the [Write debugging information] section, select the memory dump file type.
- Small memory dump (2MB or more)

  Minimum information is recorded to the memory dump file.

  Each time a fatal error occurs, a new file is created in the directory specified in [Small dump directory].
- Kernel memory dump

  Only kernel memory is recorded to the memory dump file.
- Complete memory dump (Recommended)

  The whole system memory information is recorded to the memory dump file.

    2. In [Dump file] or [Small dump directory], specify the directory to save the memory dump file, with its full path.

In case of kernel memory dump or complete memory dump, if [Overwrite any existing file] is checked, debugging information is overwritten to the specified file every time.

7 Click [OK] to close the [Startup and Recovery] window.

8 Click [OK] to close the [System Properties] window.

9 Restart the system.

The setting is enabled after the system is restarted.

■ Paging File Setting

Set up the paging file according to the following procedures.

1 Log on to the server with administrator privileges.

2 Check free space of the drive where the system is installed.

Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.132).If the drive has no free space, refer to "■ Cannot Collect the Memory Dump" (→pg.263).

3 Click [Start] → [Settings] → [Control Panel].

4 Double-click the [System] icon.

The [System Properties] window appears.

5 Click the [Advanced] tab and click [Performance Options].

The [Performance Options] window appears.
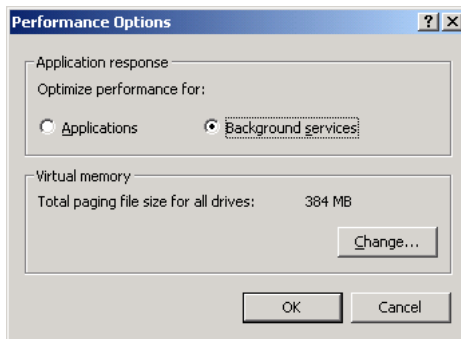
6 Click [Change] in the [Virtual memory] section.
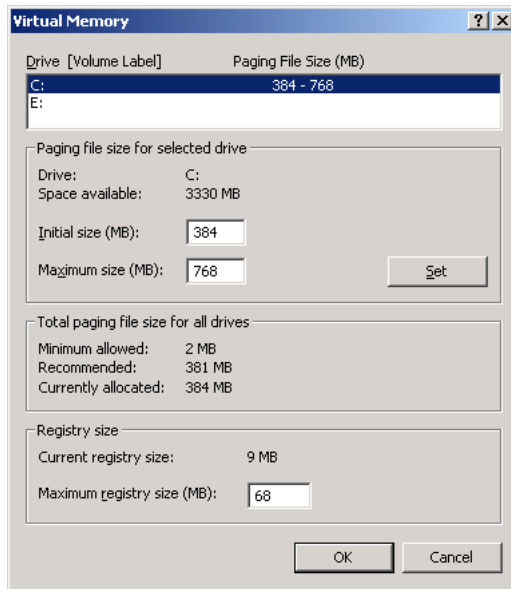
The [Virtual Memory] window appears.

7 Specify the drive where the paging file is to be created.

In [Drive], select the drive where the system is installed.

The selected drive is displayed in [Drive] in [Paging file size for selected drive].

8 Specify the [Initial size].

The value depends on the type of the set dump file.

Specify a value larger than the value shown in [Recommended] in [Total paging file size for all drives].

IMPORTANT

▶ When a smaller value is specified for the paging file size, performance may be affected. We recommend to specify the paging file size larger than the recommended value.

9 Specify the [Maximum size].

Specify a value larger than the [Initial size].

10 Save the settings.

Click [Set] in the [Paging file size for selected drive] section.

The settings are saved, and the value specified is displayed in [Paging File Size] of [Drive].

11 Click [OK] to close the [Virtual Memory] window.

12 Click [OK] to close the [Performance Options] window.

13 Click [OK] to close the [System Properties] window.

14 Restart the system.

The setting is enabled after the system is restarted.

5

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5.2 Creating a Disk for System Recovery

If the installation of the OS was performed manually, create a system recovery disk.

◯POINT

▶ If the system file, system configuration or environment setting change at startup, etc., are damaged, such data can be reconstructed using the recovery information stored in the created system recovery disk.

▶ To create a recovery disk, you need an unused formatted floppy disk. Prepare it in advance.

5.2.1 Creating the Automated System Recovery (ASR) Set For Windows Server 2003

After setting up Windows Server 2003, create a system recovery set. To do this, you need an unused formatted floppy disk and a medium to store back up files.

1 Click [Start] → [All Programs] → [Accessories] → [System Tool] → [Backup].

The [Backup or Recovery Wizard] window appears.

2 Click [Next].

The [Backup or Recovery] window appears.

3 Select [Create a backup of files and settings], and then click [Next].

The [Items to Create Backups] window appears

4 Select [All the information in this computer], and then click [Next].

The [Backup Type, Destination and Name of the Backup File] window appears.

5 Specify name and destination of the backup file, and then click [Next].

The [Backup or Recovery Wizard Complete] window appears.

6 Click [Finish].

Backup process starts.

7 If a message prompting you to insert a floppy disk appears, insert the floppy disk and click [OK].

Automated system recovery disk is created.

8 When the process is completed, a message appears. Remove the floppy disk according to the message and put a label on it.

Label example: Windows Automated System Recovery Disk: Backup.bkf, Created at 12:00 04/01/2003

9 Click [OK] to exit [Backup Utility].

10 Click [Close] to close the [Backup Progress] window.

An automated system recovery set has been created.

Store the automated system recovery set just created in a secure location.

5.2.2 Creating a System Recovery Disk For Windows 2000 Server

After setting up Windows Server 2000, create a system recovery disk. To do this, you need an unused formatted floppy disk.

1 Put a label showing "Windows 2000 system recovery disk" onto a floppy disk and insert it into the floppy disk drive.

2 Click [Start] → [Programs] → [Accessories] → [System Tools] → [Backup].

The backup window appears.

3 Click the [Wizard] tab and click [System Recovery Disk].

Create a system recovery disk by following the window instructions.

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5.3 Storing the System Setting Information

Before starting operations, store the configuration information of the BIOS setup utility. By storing this information, the system can be recovered with the stored information in case of a system failure (such as when the information is deleted due to the drain of the built-in battery). Use Server Management Tools for storing and recovering the system configuration information.

IMPORTANT

▶ Be sure to store the BIOS information after the following operations.
  • When the information is changed with the BIOS setup utility
  • When the hardware configuration of this server is changed (e.g. a CPU, memory, baseboard or expansion card is added/removed or changed)

■ Preparation for Using Server Management Tools

Before using Server Management Tools, prepare the "Server Management Tools" disk supplied with the server at hand.

■ Notes

- Server Management Tools are for this server only. Do not use those tools on other systems. Otherwise, the system can be damaged.
- Only the information that is configured with the BIOS setup utility can be stored/recovered with Server Management Tools. The BIOS information in internal SCSI devices or expansion cards cannot be stored/recovered.
- Make sure to start up the server with the "Server Management Tools" disk before running Server Management Tools. Do not run Server Management Tools on the server started from the hard disk or by the other floppy disks. Otherwise, the system may be corrupted.
- Do not eject a floppy disk while the floppy disk access LED is on. Such an action may lead not only to corruption of the floppy disk data but also an unstable state of the system.
- If an error message appears while running Server Management Tools, respond to the message according to "■ Server Management Tools Error Messages" (→pg.259).

5.3.1 How to Store the BIOS Information

Store the BIOS information according to the following procedures.

IMPORTANT

▶ Before starting the operation, if the "OS Boot Monitoring" function of ServerView is enabled, disable it (it is disabled by default).
If you start up the system while the "OS Boot Monitoring" function remains effective, the operation of the server may become unpredictable at such times as an abrupt power interruption or restart.
If it is necessary to operate the server with the "OS Boot Monitoring" function enabled, enable the function after storing the BIOS information.
For details of ServerView, refer to "ServerView User's Guide".

1 Turn on the server and insert the "Server Management Tools" disk into the floppy disk drive.

2 When the DOS prompt window appears, enter the following command and press the [Enter] key.

A:\SMTOOL\>biossave.bat

IMPORTANT

▶ If storing has already been performed with Server Management Tools, the stored file must exist in the floppy disk. In this case, overwriting the file may lead to incompletion of BIOS information recovery. Move the file to another floppy disk, rename the file, or delete it by executing the following command.
A:\SMTOOL\>deldat.bat [Enter]

3 If the BIOS information is stored correctly, the following message appears.

```
Success!
```

Storing procedure is completed. The server can now be turned off safely.

5.3.2 How to Recover the BIOS Information

If the information configured with the BIOS setup utility was deleted due to a drain of the built-in server battery, etc., restore the BIOS information according to the following procedures.

IMPORTANT

▶ Do not turn off the server during a program run.
▶ Before starting up the system by inserting the "Server Management Tools" disk, check to see that the "OS Boot Monitoring" function of ServerView is disabled (default setting).
If you start up the system while the "OS Boot Monitoring" function remains effective, the operation of the server may become unpredictable at such times as an abrupt power interruption or restart.
If the server is operated with the "OS Boot Monitoring" function enable, enable the function again before resuming operation. For details of ServerView, refer to "ServerView User's Guide".

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1 Turn on the server and insert the "Server Management Tools" disk into the floppy disk drive.

2 When the DOS prompt window appears, enter the following command and press the [Enter] key.

   A:\SMTOOL\>biosrest.bat

3 The following procedures differ depending on the BIOS setting to be restored.

When the network startup (PXE) is disabled (disabled at the time of purchase)

If the BIOS information is restored correctly, the following message appears.

```
Success!
```

When the network startup (PXE) is enabled

The following message appears.

```
Success!
----------------------------------------------
Execute 'biosrest.bat' twice in order to restore
BIOS settings completely.
Please run 'biosrest.bat' again after a reboot,
if this operation is the first time.
----------------------------------------------
```

In this case, the BIOS information restoration procedure must be performed twice.Restart the server and perform Steps 1 and 2.

When the BIOS information is set correctly, the following message appears again.

```
Success!
----------------------------------------------
Execute 'biosrest.bat' twice in order to restore
BIOS settings completely.
Please run 'biosrest.bat' again after a reboot,
if this operation is the first time.
----------------------------------------------
```

4 The BIOS information will be enabled after the next system restart. Restart the server.

Perform Step 1 to display the DOS prompt window. The restoration procedure has been completed. The server can now be turned off safely.

5.4 Creating Maintenance Tools

This section explains how to create tools for maintaining the server.
Maintenance tools are created with the FloppyBuilder function of ServerStart.

With the FloppyBuilder function of ServerStart, you can create the following tools.
- DOS floppy disks
- Hardware Configuration Tools (such as Server Management Tools)

The FloppyBuilder can be used under environments such as.
- the ServerStart system started on a client computer (recommended)
- the system started on the server using the ServerStart CD-ROM

POINT

▶ When creating the tools on a client computer, it is necessary to install ServerStart on the client computer beforehand.Install it according to"2.4 Preparation for Using ServerStart on a Client Computer" (→pg.49).
If ServerStart of a different version is installed in the computer, make sure to uninstall the ServerStart. Then perform installation again. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.51).

IMPORTANT

▶ The FloppyBuilder function may not operate correctly if you start up ServerStart while ServerStart of a different version is installed in the computer. Make sure to uninstall a different version of ServerStart.

5.4.1 Creating a DOS Floppy Disk

For DOS data stored into the floppy disk, refer to the file in the following folder of the ServerStart CD-ROM.
[CD-ROM drive]: \FreeDOS
To create a DOS floppy disk, you need an unused floppy disk. Prepare it in advance.
If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

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■ Starting ServerStart

● For Creation on a Client Computer

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

1 Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

1 Insert the ServerStart CD-ROM into the client computer.

ServerStart starts up and the [Welcome to ServerStart] window appears.

● For Creation on the Server

1 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

2 Insert the attached "ServerStart floppy disk" into the server's floppy disk drive. Then make sure "Removable media" and "A:" are selected and click [Create].

A network setup window for remote installation appears.

POINT

▶ If a configuration file already exists in the ServerStart floppy disk and [OK] is clicked without clicking [Create], the [ServerStart Unattended Mode] window appears. Make sure to click [Exit]. The [Welcome to ServerStart] window appears.
If [Start] is clicked in the [ServerStart Unattended Mode] window, the installation of the server will start and all disk contents will be deleted.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes.When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

4 Click [or Insert a ServerStart Floppy Disk to Start ServerStart].

The [Welcome to ServerStart] window appears.

5 Eject the ServerStart floppy disk.

5

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■ Creating a DOS Floppy Disk

Start up ServerStart and confirm that the [Welcome to ServerStart] window is displayed.

1 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.
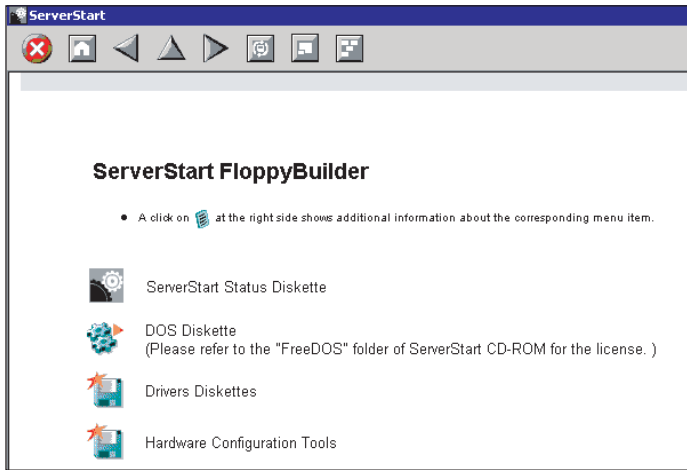
2 Click [DOS Diskette].

Insert the prepared floppy disk by following the message.

3 Perform the procedures following to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.

The DOS floppy disk will be created automatically.

When a message appears indicating that creating the disk is completed, click [OK] and eject the disk.

5.4.2 Creating a Hardware Configuration Tool

This section explains how to create a Hardware Configuration Tool from the ServerStart CD-ROM.

Prepare floppy disks as many as the tools you want to create beforehand.

Types of a Hardware Configuration Tool vary by model.

1 Start up ServerStart and click [FloppyBuilder].

For the procedure, refer to Steps 1 and 2 in "5.4.1 Creating a DOS Floppy Disk" (→pg.143).

2 Click [Hardware Configuration Tool].

3 Click the tool you want to create.

Insert the prepared floppy disk by following the message.

4 Perform the subsequent operations according to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.

The respective tools will be created automatically. When a message appears indicating that the disk is created, click [OK] and eject the disk.

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5.5 Notes Before Operating the Server

This section explains the settings required before starting to operate the server.
For the respective settings, refer to "First Step Guide".

- If a LAN card was added, install a driver according to "4.3 Installing the LAN Driver" (→pg.121).
- When connecting a SCSI optional device (such as a hard disk cabinet or DAT), connect it according to "Chapter 7 Installing Internal Options" (→pg.163).
- For the settings for the installed applications supplied with the product, refer to the manuals of each application.

5.5.1 Updating the System

■ Windows Update

The system being used must be updated to prevent potential problems in the system.
Executing Windows Update can automatically search the latest version of QFE applicable to the OS and update the system to the latest status.Execute Windows Update periodically. Executing Windows Update requires a network environment connectable to the Internet.

5.5.2 Auto-run Function from CD-ROM Drives

Perform the following procedures to change the settings of the auto-run function from the CD-ROM drives after server installation.

1 Make the registry editable, and change the value of AutoRun of the following registry key.

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\CDRom

To enable auto-run, set the value of Autorun to "1", and to disable auto-run, set the value to "0".

2 Restart the system.

The setting is enabled after the system is restarted.

5.5.3 Drive Letter Assignment in Expert Mode

In expert mode, you cannot specify a drive letter to a particular partition arbitrarily. Drive letters specified with Disk Manager in expert mode will be sequentially assigned from the first partition with "C, D, E..." when installation is completed, and an unused drive letter will be assigned to the CD-ROM drive.
To change the drive letter, perform the following procedures after installation.

IMPORTANT

▶ You cannot change the drive letters for the system and boot drive.

■ For Windows Server 2003

1 Click [Start] → [Administrative Tools] → [Computer Management].

2 Click [Disk Management].

3 Right-click the partition to change the letter and click [Change Drive Letter and Path].

The [Change Drive Letter and Path] window appears.

4 Click [Edit].

The [Change Drive Letter or Path] window appears.

5 Change the drive letter.

■ For Windows 2000 Server

1 Right-click [My Computer] icon on the desktop and select [Manage].

2 Click [Disk Management].

3 Right-click the partition to change the letter and select [Change Drive Letter and Path].

The [Change Drive Letter and Path] window appears.

4 Click [Edit].

The [Change Drive Letter or Path] window appears.

5 Change the drive letter.

5

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5.5.4 Notes on Advanced Uninterruptible Power Supply (UPS)

Note the following points when using an advanced uninterruptible power supply (referred to as UPS afterward).

■ UPS Shutdown Time Setting

Specify enough time for the UPS power-off time (time from the shutdown direction to the actual power-off). If this time is set insufficiently, the power will be cut off before system shutdown, which may result in destruction of data. For more details, refer to the manuals for UPS and UPS management software.

■ Power Supply Control by UPS

Change BIOS settings as follows to power the server on automatically using the UPS management software (PowerChute Network Shutdown, PowerChute Business Editon) at power recovery or during scheduled operation. For details on how to set the BIOS Setup Utility, refer to "8.2 BIOS Setup Utility" (→pg.208).

1 Start the BIOS Setup Utility.

2 From the [Advanced] menu, select the [Power On/Off] submenu and press the [Enter] key.

The [Power On/Off] submenu window appears.

3 Set the [Power Failure Recovery] to [Always On].

→"8.2.9 Power On/Off Submenu" (pg.221)

5.5.5 Turning the Power On/Off via a LAN

You can turn the power on/off the server from a client (via a LAN) by utilizing the Wakeup on LAN (WOL) function.

IMPORTANT

▶ Be sure to install ServerView to control the power supply via a LAN.
▶ When ServerView is not installed, the server is not turned off automatically after OS shutdown.

POINT

▶ When the power cable is disconnected from the server or the server is powered off due to power interruption, restart the server. Unless the server is restarted, the WOL function will be disabled.
▶ Only the onboard LAN supports the WOL function on this server. Make sure you connect the onboard LAN to a control power supply via a LAN.

■ BIOS Setup Utility Setting

When power management is performed via a LAN, configure the settings as follows using the BIOS Setup Utility. This is set to "Enabled" by default.

1 Start the BIOS Setup Utility.

"8.2.1 Starting and Exiting the BIOS Setup Utility" (→pg.208)

2 From the [Advanced] menu, select the [Power On/Off] submenu and press the [Enter] key.

The [Power On/Off] submenu window appears.

3 Set [LAN:] of [Power On Source] to [Enabled].

→"8.2.9 Power On/Off Submenu" (pg.221)

POINT

▶ To start up the server via a LAN, refer to "● Performing Remote Installation" (→pg.42).

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5.5.6 Other Notes on Operation

■ Unnecessary Files

After OS installation is completed, folders named Runonce and Runonce 2 may be left in the drive where the OS is installed. Delete these folders since you do not need them for the system operation.

■ Notes on 24-hour Operation

● Automated System Operation

To provide an extra margin of safety against unintentional damage, introduce disaster-prevention measures in the office and keep disaster prevention personnel (such as a security guard or janitor) in the building.

● Unintentional Power-off Prevention

We recommend the installation of a special power supply device (such as a distribution board) to prevent unplanned power shut-offs.

5.6 LAN Driver Advanced Setup

Use Intel® PROSet for LAN driver advanced setup.

5.6.1 Intel® PROSet

■ Intel® PROSet Installation

If the OS is installed using ServerStart, Intel® PROSet is already installed with the driver. If Windows Server 2003/Windows 2000 Server is installed manually, Intel® PROSet will not be installed.

On Windows Server 2003/Windows 2000 Server, if [Intel® PROSet] is not displayed in the [Control Panel], install Intel® PROSet according to the following installation procedures.

1 Start the following EXE file contained in the ServerStart CD-ROM.

For Windows Server 2003

[CD-ROM drive]: \Tools\GENERAL\Intel\ProsetW2k3\Proset.exe

For Windows 2000 Server

[CD-ROM drive]: \Tools\GENERAL\Intel\ProsetW2k\Proset.exe

2 Select [Automatic execution-runs setup immediately] and click [OK].

Perform the subsequent procedures by following the instructions.

■ Notes on Referring to the Intel® PROSet Help Topics

When referring to help topics, note the following points.

• Do not use the driver downloaded from the Intel Corporation online service page on this server.

• If the descriptions in the help and this manual vary, give priority to this manual.

• The name of LAN cards appears in the help texts corresponds to the cards as follows.

table: LAN cards appear in the help texts

LAN cards appear in the help text	Corresponding LAN cards
PRO/1000 Desktop	PG-1852
PRO/1000 Server	PG-1862/PG-1882L/PG-1892L
PRO/1000 Adaptor	PG-1852/PG-1862/PG-1882L/PG-1892L
PRO/1000 Copper Adaptor	PG-1852/PG-1862/PG-1892L
PRO/1000 Fiber Adaptor	PG-1882L
82540-based Adaptor	PG-1852

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- The controllers of the onboard LAN and LAN cards are as follows.

table: Controller being used

LAN cards	Controller being used
Onboard LAN (1000BASE-T)	Intel® 82547GB
PG-1852	Intel® 82540EM
PG-1862	Intel® 82546EB
PG-1882L/PG-1892L	Intel® 82545GM

5.6.2 Cautions for PG-1852/1862/188x/189xLAN Driver V8.3

■ Event Log

Once a Team is setup, multiple identical logs from the same source that starts with the following log may be stored in the system log file of the event viewer at system start-up.

Source	iANSMiniport
ID	11
Type	Warning
Description	The following adaptor link is not connected: (Adapter name) * (Adapter name) varies depending on the OS or hardware configuration.

Since such event logs will be stored nonetheless even if the Teaming function is operated normally, ignore them.

5.6.3 Teaming Function

■ Notes

When using the Teaming function, note the following points.

- You require Service Pack 2 or later for Windows 2000 Server.
- For AFT/ALB/FEC/GEC type, you can incorporate up to four LAN ports into one team and two ports for a SFT type team.
- Once a Team is created, virtual adapters (Intel® Advanced Network Service Virtual Adapter) will be created in the [Device Manager] and/or [Network and Dial-up Connections] of the system. Do not disable or delete this virtual adapter from the [Device Manager] or [Network and Dial-up Connections]. When deleting a virtual adapter, make sure to use "Intel® PROSet".
- When the Teaming function is being used, you can only use the following protocols.
  - For AFT/SFT/FEC/GEC type: IP, NetBEUI, IPX (NCP), IPX (NetBIOS)
  - For ALB type: IP, IPX (NCP)
- When the Teaming function is being used, you cannot use the hardware assist function of IPSEC. Do not use this function even if the function is installed in all cards in the team.

- When the Teaming function is being used, you cannot use Windows Load Balancing Service (WLBS) and Network Load Balancing (NLB).
- PG-1852 does not become a member of a Team.
- If FEC/GEC type is selected, you can only use the switch for link aggregation.
- When adding/deleting a FEC/GEC type member, perform such operation under a linked down state.

IMPORTANT

▶ Only a link down error between a LAN card (onboard LAN) and the switch it connects with, and the equivalent errors lead to switching of the route. Therefore, if only the switch or LAN card (onboard LAN) is partially damaged and the route being used is sound at the link level, the route will not be switched in the team, but the communication within the Team may become an error.

■ Teaming Configuration Procedure

1 Start up Intel® PROSet. The procedure differs depending on the OS being used.

For Windows Server 2003
1. Click [Start] → [Control Panel] → [Intel(R) PROSet].

For Windows 2000 Server
1. Click [Start] → [Settings] → [Control Panel].
   The [Control Panel] window appears.
2. Start up "Intel(R) PROSet".

2 Select a card to incorporate in a Team and right-click it.

3 Click [Create New Team] in [Add to Team].
[Teaming Up Wizard] appears.

4 Select a Teaming type with which you want to create a Team.
Select the following depending on the Teaming type selected accordingly.
- AFT type: "Adapter fault tolerance"
- ALB type: "Adaptive load balancing"
- SFT type: "Switch fault tolerance"
- FEC type: "FEC/802.3ad Static link aggregation"
- GEC type: "GEC/802.3ad Static link aggregation"

5 Select a LAN card to incorporate in the Team and click [Next].

6 Click [Finish].

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7 Click [OK].

When the Teaming setting is completed, the following virtual adapter will be created.

• Intel(R) Advanced Network Services Virtual Adapter

Upper protocols will be bound with the main virtual adapter.

You cannot bind them with the LAN card consisting of a Team.

The IP address can be set in the main virtual adapter.

5.6.4 VLAN

■ Notes

When using a VLAN, note the following points.

• You can only have "NetBIOS over TCP/IP" enabled for up to four VLANs in the whole system.

• On a VLAN, do not use protocols other than TCP/IP.

• You can only set ten or less VLANs to a LAN port.

• When adding or deleting a VLAN, always use "Intel(R) PROSet". Do not disable or delete a VLAN from the [Device Manager] or [Network and Dial-up Connections].

■ VLAN Setup Procedure

1 Start up "Intel® PROSet". The procedure differs depending on the OS being used.

For Windows Server 2003
　　1. Click [Start] → [Control Panel] → [Intel(R) PROSet].

For Windows 2000 Server
　　1. Click [Start] → [Settings] → [Control Panel].
　　　The [Control Panel] window appears.
　　2. Start up "Intel(R) PROSet".

2 Select a LAN card to setup a VLAN and right-click it.

3 Click [Add VLAN]. The following message may be displayed at the time. In such a case, click [Yes].

```
You need to connect with the switch that supports IEEE
VLANs (802.1Q). Do you want to enable QOS Packet Tagging?
```

4 Specify [ID] and [Name]. Then click [OK].

The [ID] should be identical with the switch setting.
The [Name] does not need to be identical with the switch setting.

5 Repeat Step 3 through 5 to set respective VLANs.

6 Click [OK].

> When setup of the VLAN is completed, the following virtual adapter will be created.
> • "Intel(R) Advanced Network Services Virtual Adapter"
>
> Upper protocols will be bound with the main virtual adapter. You cannot bind them with the LAN card consisting a VLAN. The IP address should be specified in the main virtual adapter.

5.6.5 Local Address Setting

Specify a local address according to the following procedures.

1 Start up "Intel® PROSet". The procedure differs depending on the OS being used.

For Windows Server 2003
> 1. Click [Start] → [Control Panel] → [Intel(R) PROSet].

For Windows 2000 Server
> 1. Click [Start] → [Settings] → [Control Panel].
>
>   The [Control Panel] window appears.
> 2. Start up "Intel(R) PROSet".

2 Select a LAN card to set the local address and click the [Advanced] tab.

3 Specify a local address in [Locally Managed Address].

5.6.6 Jumbo Frame

1000BASE-T/1000BASE-SX supports Jumbo frame. When using Jumbo frame, construct the Jumbo frame network using only devices that support Jumbo frame and apply the settings that will enable Jumbo frame.
Configure setting for Jumbo frame according to the following procedures.

1 Start up "Intel(R) PROSet" from [Control Panel].

2 Select a LAN card to perform configuration and click the [Advanced] tab.

3 Specify the maximum frame size in the [Jumbo Frame] tab.

■ Other Cautions

You cannot connect devices directly with a cross cable without connecting a hub switch or router in between.

5

Operations after OS Installation

Chapter 6

High Reliability Tools

For stable PRIMERGY server operations, we
recommend that high reliability tools be installed.
This chapter explains the installation and
necessary settings of high reliability tools.

6.1 Server Monitoring Tool [ServerView]

ServerView constantly monitors the status of the servers' hardware in the network and provides a console with which the administrator can check the status of all the servers at a glance. In addition, if an error occurs, the administrator will be notified in real-time to take immediate action.

■ Installing ServerView

● When Installed Using ServerStart

If the OS is implemented and setup using ServerStart, ServerView will be installed at once with the OS and other high reliability tools.

● When Installed Manually

Perform installation referring to "Chapter 2 Installing" in "ServerView User's Guide".

● For Linux

ServerView cannot be installed using ServerStart. To install ServerView into a Linux system, refer to "ServerView User's Guide".

IMPORTANT

▶ Be sure to install SNMP service before installing ServerView.
▶ Systems with Windows Server 2003 Service Pack 1 may display the following popup message at the next startup after ServerView installation or uninstallation.This is not a problem. Click [Close message] to close the message.

```
Windows has terminated the following program(s) to protect
your computer.
  Name:    SNMP Service
```

■ Setting Required after Installation

Perform necessary operations after ServerView installation referring to "2.4 Checking after Installation" in "ServerView User's Guide".

■ Boot Monitoring Setting

We recommend enabling the "Boot Monitoring" function after ServerView is installed. For setting procedures and explanation on the function, refer to the [Restart Settings] Tab of "3.2.4 Serious Error Handling (ASR)" in "ServerView User's Guide".

■ Notes on Using the Console Redirection Function

On Windows Server 2003 servers, the serial port cannot be used for console redirection using RemoteControlService supplied with ServerView.For information on RemoteControlService, refer to "ServerView User's Guide".

6

High Reliability Tools

6.2 Solving Problems Early [DSNAP]

DSNAP is a tool for collectively acquiring failure investigation information such as server environment information.

■ Installing DSNAP

Copy the "DSNAP.EXE" file stored in the "\PROGRAMS\Japanese\DSNAP" folder of the ServerStart CD-ROM into the server's hard disk.

■ How to Use

This topic is discussed in the "\PROGRAMS\Japanese\DSNAP\README.TXT" file in the ServerStart CD-ROM. Use a text editor to open it.
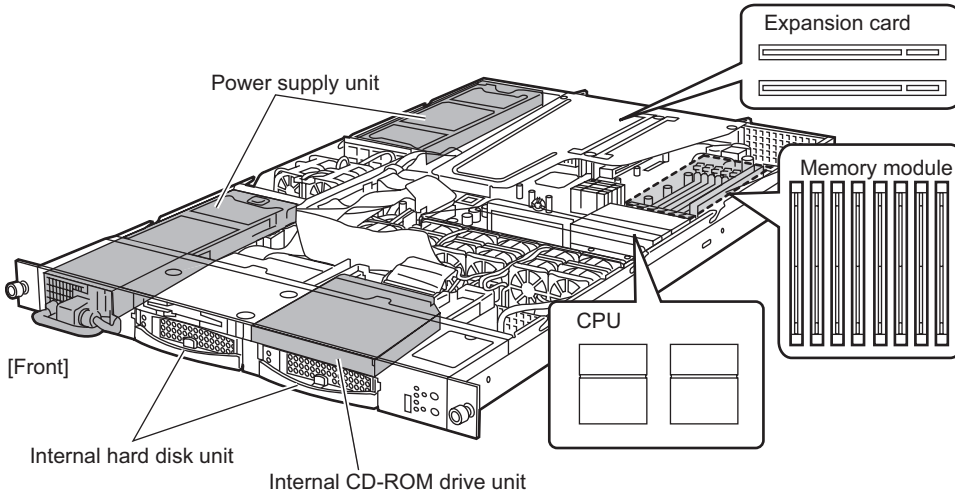
Chapter 7

Installing Internal Options

This chapter explains how to install internal options on this server. Contact an office listed in the "Contact Information" of the "Start Guide" regarding installation and removal of internal options.

7.1 Before Installing Internal Options

The following types of internal options can be installed on this server.

POINT

▶ When installing or removing devices, make sure to use the removed screws on the same location and devices that were last installed or removed. Failure to do so can damage the device.

▶ The types of installable options described in this manual are subject to change without notice.

⚠ WARNING

Electric Shock
• When installing/removing internal options to/from the server, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.32)).
• Do not disassemble the power supply unit. Doing so may cause electric shock.

Do not
• Do not install unauthorized third party internal options. Doing so may cause a device failure, fire, or electric shock.
• Do not damage or modify internal cables or devices. Doing so may cause a device failure, fire, or electric shock.

⚠CAUTION ⚠

- Devices inside the server remain hot after shutdown. Wait for a while after shutdown before installing or removing internal options.
- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.
- If devices are installed using the methods other than those outlined in this chapter or disassembled, the warranty will be invalidated.

7

Installing Internal Options

7.2 Removing and Attaching the Top Cover

Remove the top cover to install internal options. Perform the following procedures to remove the top cover.

⚠WARNING

Electric Shock • When removing or attaching the top cover, turn off the server and all peripheral devices. Also unplug all power cables from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.32)).

• Use tip preventive stabilizers when installing the rack.
Pulling the server out of the rack without installing stabilizers may cause the rack to tip over.

7.2.1 How to Remove the Top Cover

1 Open the rack door.
→"1.4.1 Opening the Rack Door" (pg.28)

2 Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.32)

3 Remove all cables (e.g., SCSI and LAN cables) from the server.

4 Touch a metal part of the server to discharge static electricity.

5 Loosen the two screws on the front of the server.
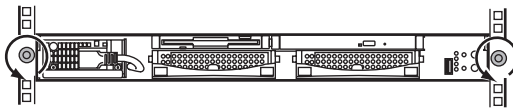
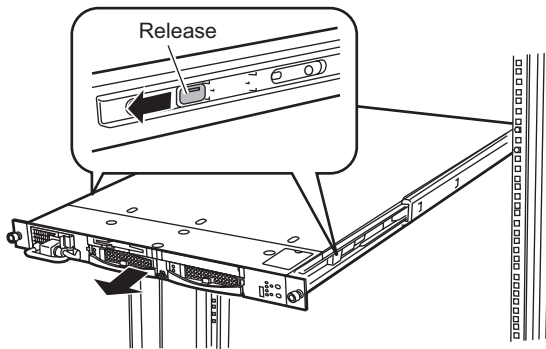***6*** Pull out the server until it locks into position.
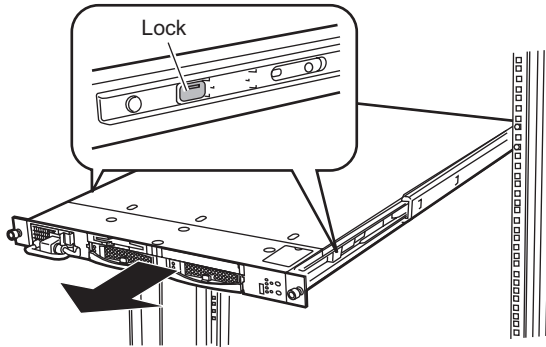
Lock

⚠️CAUTION ⚠️ • When pulling the server out or pushing it back, be careful not to pinch fingers or clothes.

7 While pulling the locks on both sides, pull the server a little to release the locks.
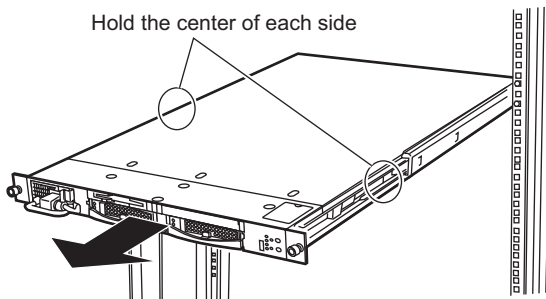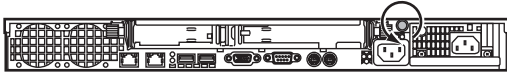

Release

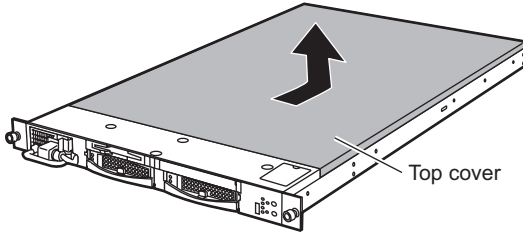⚠️CAUTION ⚠️ • If the server is pulled out too far, it can fall, resulting in injury.

8 Hold the central areas of the server, and pull the server to remove from the rack.

Hold the center of each side

7

Installing Internal Options

9 Loosen the screw on the rear of the server.

10 Slide the top cover slowly to the rear and lift it to remove from the server.
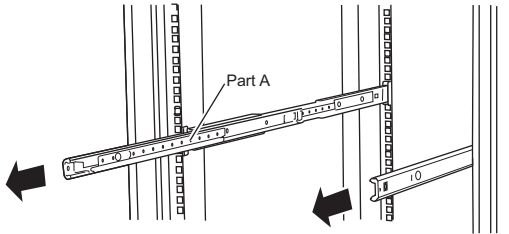

Top cover

■ How to Attach the Top Cover

To attach the top cover, simply reverse procedures in "7.2.1 How to Remove the Top Cover" (→pg.166).

POINT

Notes on installing the server on the rack

▶ Pull part A on the slide rail (on both sides) toward the front of the slide rail until it stops.

Part A

▶ When sliding the server backward, be sure to keep the slide rails and inner rails on both sides parallel to each other.

Lock

Slide rail

Inner rail
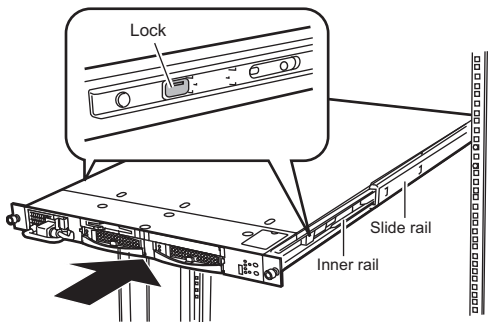
POINT

▶ Check to make sure no tools or unnecessary components were left inside the server before attaching the top cover back into place.
▶ When sliding the server backward, press the locks on both sides of the rails to unlock.
▶ Before turning on the server, make sure that the top cover is attached.

7.3 Installing a CPU

The server can have up to two CPUs by adding an optional CPU.

⚠WARNING Electric Shock • Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables from the server (→"1.4.3 Turning Off the Server" (pg.32)).
Failure to do so may cause electric shock or device failures.

⚠CAUTION • Do not install unauthorized third party CPUs. Doing so may cause failures.
• Do not use CPUs that differ in frequency or cache size. The system will not start up.

• The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity.
Before handling them, first touch a metal part of the server to discharge static electricity.
• Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

7.3.1 Where to Install CPUs

CPU socket 0 is installed with a CPU by default. Install an additional CPU in CPU socket 1.

CPU Socket 1
CPU Socket 0 (Standard)
[Front]
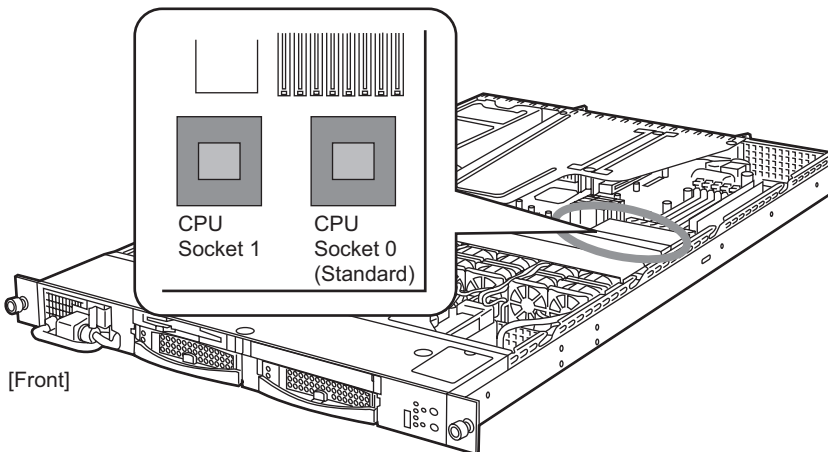
7.3.2 Installable CPUs and Notes

■ Installable CPUs

The following CPUs can be installed on this server. The additional CPU must be the same model (with the same frequency/cache size) as the existing CPU.

table: List of Installable CPUs

Product name	Model	Remarks
Processor Xeon™ 3.0GHz/2MB	PG-FG242	For 3.0GHz/2MB
Processor Xeon™ 3.2GHz/2MB	PG-FG243	For 3.2GHz/2MB
Processor Xeon™ 3.6GHz/2MB	PG-FG244	For 3.6GHz/2MB

■ Contents of the Optional CPU Package

Before installing the CPU, refer to "Appendix B.1 CPU Specifications" (→pg.293) to check the contents of the optional package.

■ Changing the OS

When adding a CPU to a one-CPU server with the Hyper-Threading function disabled, the OS must be changed to the multi-processor kernel.

● For Windows

For how to change the OS, refer to "9.8 Changing OS Settings" (→pg.281).

● For Linux

Customers using the Linux distribution OS are advised to refer to the following.
The Fujitsu PRIMERGY website:http://primergy.fujitsu.com

7.3.3 How to Install a CPU

This section explains how to install a CPU.

1 Turn the power off and remove the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

2 Touch a metal part of the server to discharge static electricity.

3 Remove the CPU duct (1) and then the socket cover (2).

CPU duct

Socket cover
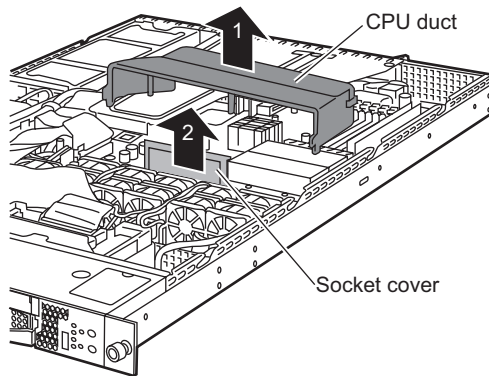
4 Release the socket lever.

Slide the socket lever to the side and lift it slowly.

135°

Socket lever
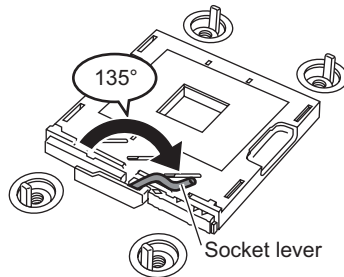
⚠CAUTION ⚠
- The socket lever turns appox. 135 degrees.
  Be sure to turn the socket lever fully to release it. If the socket lever is not fully open during installation, the CPU may be damaged.

7

Installing Internal Options
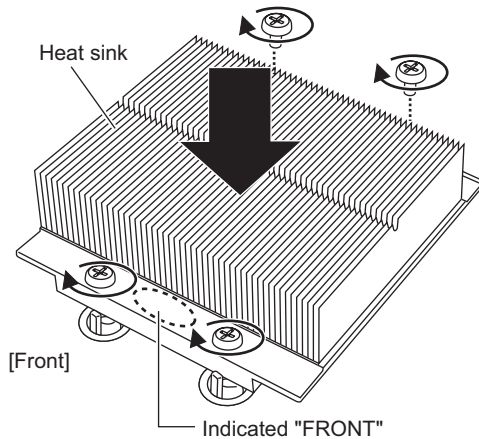
5 Install the CPU.

1. Align the pin 1 marking (small triangle) on the CPU socket with the triangle on the CPU, and insert the pins into the socket.
2. Return the socket lever to fasten the CPU.

Pin 1 marking
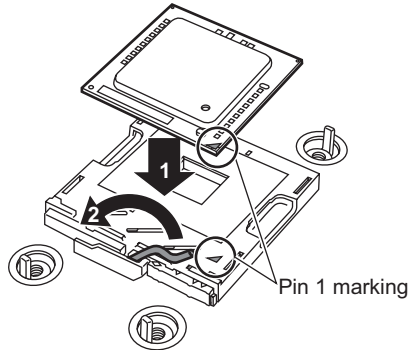
⚠️ CAUTION 🛑
• When installing the CPU in the socket, be careful not to bend the CPU pins.

6 Install the heat sink.

Install the heat sink in the direction so that the "FRONT" side comes to the front of the server.
Fasten it using the four screws.

Carefully tighten the screws in diagonal order.

Heat sink

[Front]

Indicated "FRONT"

📌**IMPORTANT**

▶ Make sure that the four screws are tightened securely.

7 Return the CPU duct to the original position.

8 Install the top cover and return the server back into the rack.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

9 Initialize the Extended System Configuration Data (ESCD).

On the [Advanced] menu of the BIOS Setup Utility, set [Reset Configuration Data] to [Yes].

→[Reset Configuration Data] in "8.2.5 Advanced Menu" (→pg.215)

10 Store the BIOS settings.

→"5.3 Storing the System Setting Information" (pg.140)

■ How to Remove a CPU

To remove a CPU, simply reverse the installation procedures.

7.3.4 Defective CPU Disconnection Function

This server is equipped with the defective CPU disconnection function.

This function disconnects the CPU judged to be defective (abnormal) during Power On Self Test (POST) to start the server. On two-CPU servers, if one CPU is defective, the other CPU starts up the server.

The defective CPU can be checked with the information displayed during POST or the [CPU Status] submenu in the [Server] menu of the BIOS Setup Utility (→"8.2.13 CPU Status Submenu" (pg.227)).

■ Removing the Defective CPU

Replace the defective CPU with a new one according to "7.3.3 How to Install a CPU" (→pg.171).

POINT

▸ After replacing the CPU, start the BIOS Setup Utility and select the [Server] menu → "8.2.13 CPU Status Submenu" (→pg.227) to check that [CPU n Status] (n is the number of the replaced CPU) is set to [Enabled].

If the item is set to [Failed] or [Disabled], change the setting to [Enabled].

If it is not set to [Enabled], the server will start with the CPU recognized as being defective and constantly disconnected. To use the new CPU, set the item to [Enabled] for releasing the failed CPU status at the next startup.

7

Installing Internal Options

7.4 Installing Memory Modules

Additional memory will help to increase the amount of data to read at a time and improve the server processing capability.

⚠WARNING

Electric Shock

- Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables and AC adapters from the server (→"1.4.3 Turning Off the Server" (pg.32)). Failure to do so may cause electric shock.
- Do not install unauthorized third party memory modules. Doing so may cause electric shock, a fire, or failures.

- Wait for a sufficient period of time after server shutdown before installing or removing memory. Failure to do so may cause burns.

⚠CAUTION

- When installing or removing memory modules, make sure to remove the screws on the specified points only. Failure to do so may cause injury or device failures.

- Touch only the specified part of the printed circuit board.
  Failure to do so may cause injury or device failures.

- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity.
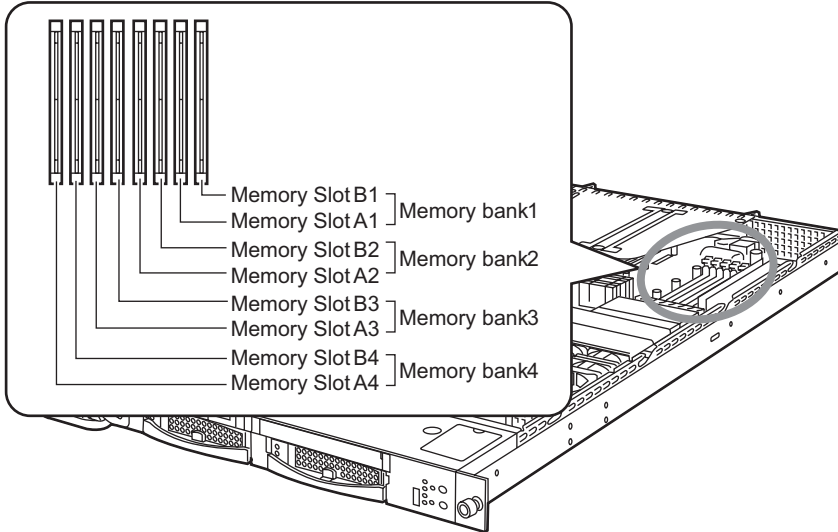 Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not insert and remove memory modules repeatedly. Doing so may cause failures.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

7.4.1 Where to Install the Memory Modules

Install memory modules in the memory slots on the baseboard.

One memory bank consists of Slots A and B on this server.

- Memory Slot B1 ⎤
- Memory Slot A1 ⎦ Memory bank1
- Memory Slot B2 ⎤
- Memory Slot A2 ⎦ Memory bank2
- Memory Slot B3 ⎤
- Memory Slot A3 ⎦ Memory bank3
- Memory Slot B4 ⎤
- Memory Slot A4 ⎦ Memory bank4

■ Installation Order

Use memory banks in order of bank 1, bank 2, bank 3, and bank 4 in order of larger capacity. Install by a pair of memory modules having the same capacity in the memory bank.

7.4.2 Installable Memory Modules and Notes

■ Installable Memory Modules

The following memory module types can be used on this server.

table: List of Installable Memory Modules

Product name	Model	Remarks
Memory Module-1GB	PG-RM1BC	512MB DIMM × 2
Memory Module-2GB	PG-RM2BC	1GB DIMM × 2
Memory Module-4GB	PG-RM4BC	2GB DIMM × 2

■ Contents of the Optional Memory Package

Before installing memory modules, refer to "Appendix B.2 Memory Specifications" (→pg.293) to check the contents of the optional package.

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Installing Internal Options

■ Notes on Installing Memory Modules

● Identifying Memory Modules

When installing memory modules check that the number beginning with "CA" (e.g., CA05946-E101) printed on the label is identical on the two DIMMs. Be sure to install a pair of modules with the same number.

If the DIMMs have identification labels, be sure to install a pair of DIMMs with the same capacity and the label placed on the same location.

The figure below shows the identification label locations.

Identification label A   Identification label B   Identification label C
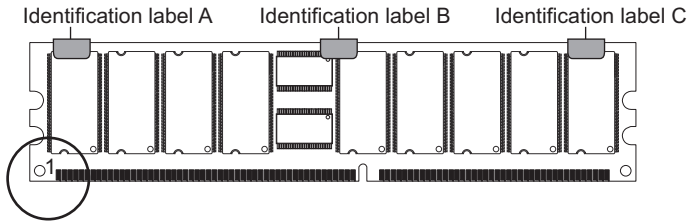
Check the identification labels in a position where the circled corner is on the left as shown in the above figure. Identification labels are applied in any of the following patterns.

table: List of Identification Label Location Patterns

Pattern	Identification label A	Identification label B	Identification label C
1	-	-	-
2	A	-	-
3	-	A	-
4	-	-	A
5	A	A	-
6	A	-	A
7	-	A	A
8	A	A	A

A: Label applied
-: Label not applied

7.4.3 How to Install/Remove Memory Modules

This section explains how to install/remove memory modules.

1 Turn the power off and remove the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

2 Touch a metal part of the server to discharge static electricity.

3 Install or remove memory modules.

- Installing

  Insert a memory module properly into the memory slot. The levers close.

  If the levers are not closed completely, push them with your fingers.

  Check that the memory module is inserted all the way.

- Removing

  Open the levers on both ends.
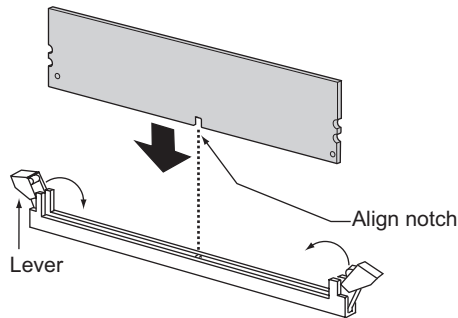
⚠ CAUTION ⚠

- Make sure not to open the clips outward too quickly because the memory module may pop up, which could cause damage.

4 Check that the memory module is inserted all the way.

⚠ CAUTION ⚠

- An improperly engaged memory module could cause a fire. Do not insert the memory module on the wrong side.

5 Install the top cover and return the server back into the rack.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

6 Initialize the Extended System Configuration Data (ESCD).

On the "8.2.5 Advanced Menu" (→pg.215) of the BIOS Setup Utility, set [Reset Configuration Data] to [Yes].

7 Store the BIOS settings.

→"5.3 Storing the System Setting Information" (pg.140)

7

Installing Internal Options

7.4.4 Defective Memory Disconnection Function

This server is equipped with the defective memory (RAM module) disconnection function.
This function disconnects the memory block judged to be defective (abnormal) during Power On Self
Test (POST) to start the server. When POST is executed, if the memory capacity is discovered to be
smaller than the capacity of the memory installed, there is a possibility of memory defect.
During POST or from the system event log, you can check the slot location that has defective memory.
For the procedure for checking the system event log, refer to "9.3 System Event Log" (→pg.267).
If defective memory is discovered, replace it, and then restart the server.

■ Replacing the Defective Memory

Replace the defective memory with a new one according to "7.4.3 How to Install/Remove Memory
Modules" (→pg.177).

ＰOINT

▶ After replacing memory, start the BIOS Setup Utility and select the [Server] menu → "8.2.14 Memory
Status Submenu" (→pg.228) to check that [Memory Module nn] (nn is the number of the replaced
memory) is set to [Enabled].
If the item is set to [Failed] or [Disabled], change the setting to [Enabled]. If it is not set to [Enabled],
the server will start with the memory recognized as being defective and constantly disconnected.
To use the new memory, set the item to [Enabled] for releasing the failed memory status at the next
startup.

7.5 Installing Expansion Cards

This section explains the types of expansion card, installation procedures, and notes on expansion cards.

⚠️ **WARNING** ⚡ Electric Shock • Before installation, turn off the server and peripheral devices. Unplug the power cables from the outlets. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.32)).

⚠️ **CAUTION** • The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity.
Before handling them, first touch a metal part of the server to discharge static electricity.
• Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

❗ • Expansion cards are susceptible to static electricity. Place them on conductive pads or keep them in their packaging as long as they are not necessary.

7.5.1 Where to Install an Expansion Card

This server has two PCI slots. Up to two PCI cards can be installed.
The figure below shows the slot locations.

PCISlot1
PCISlot2

[Rear]
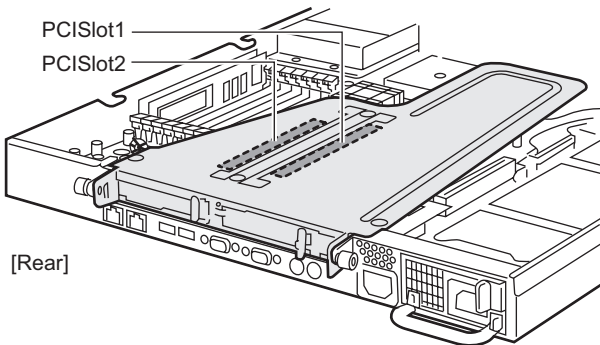
■ PCI Slot Specifications

The table below shows the PCI slot specifications.

table: PCI Slot Specifications

PCI slot	Specifications	Remarks
1	64-bit 133MHz, PCI-X	For a full height, half length, or low profile PCI card
2	64-bit 66MHz	For a low profile PCI card

The PCI slots conform to the PCI local bus specifications (Rev. 2.2).

7

Installing Internal Options

7.5.2 Installable Expansion Cards and Notes

This section explains expansion cards that can be installed on this server and provides notes on installation.

■ Installable Expansion Cards

Up to two expansion cards listed on the following table can be installed in the server.

table: List of Installable Expansion Cards

Installable expansion card (Model name)	Number of cards		Remarks
RAID Ctrl 2-Channel 128MB w/ BBU (PG-142E3)	1		For external array systems (Ultra320 SCSI x 2ch)
IB HCA Card (PG-HSC101)	1		Not supported in Windows
Eth. Ctrl 1000-BASE-T Cu (PG-1852)	1		1000BASE-T
Eth. Ctrl 2 x 1000-BASE-T Cu (PG-1862)[*1]	1		1000BASE-T, Dual Port
Fibre Channel Controller (PG-FC106)	1	2	
Eth. Ctrl 1000-BASE-SX Fibre LC lp (PG-1882L)	2		1000BASE-SX, LowProfile
Eth. Ctrl 1000-BASE-T Cu lp (PG-1892L)	2		1000BASE-T, LowProfile
SCSI Ctrl U160 lp (PG-130L)	2		For external SCSI devices (Ultra160 SCSI, LowProfile)
Remote Service Board (PG-RSB103L)	1		

*1: The Eth. Ctrl 2 x 1000-BASE-T Cu (PG-1862) cannot be installed together with other LAN cards.

■ Location and Order of Expansion Card Installation

For expansion cards, use the PCI slots in accordance with the order indicated in the following table.
Install cards in the following order. If they are installed in the wrong order, they will not work properly.

table: Installation Order and Slots for Expansion Cards

Installable expansion card (Model name)	PCI slot		Installation order
	1	2	
RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3)	1	-	1
IB HCA Card (PG-HSC101)	1	-	2
Eth. Ctrl 1000-BASE-T Cu (PG-1852)	1	-	3
Eth. Ctrl 2 x 1000-BASE-T Cu (PG-1862)	1	-	4
Fibre Channel Controller (PG-FC106)	1	-	5
Eth. Ctrl 1000-BASE-SX Fibre LC lp (PG-1882L)	1	2	6
Eth. Ctrl 1000-BASE-T Cu lp (PG-1892L)	1	2	7
SCSI Ctrl U160 lp (PG-130L)	1	2	8
Remote Service Board (PG-RSB103)	1	2	9

-: Installation is impossible.

■ Notes on Installation

● Drivers

For expansion card drivers, refer to "2.3.5 Expansion Cards Supported by ServerStart" (→pg.48).

● Notes on Each Card

For notes of specific expansion cards, refer to the manuals supplied with the card and the notes provided with the server. Also, check the following for respective expansion cards.

● SCSI Card/RAID Card

- Connection of a SCSI device
  - For optional device connection using a SCSI or RAID card, refer to "7.10 Connection of Optional Devices" (→pg.201).
  - Connect a SCSI device supported by this server to the SCSI or RAID card.
    Operations of unsupported SCSI devices are not guaranteed.

● BIOS Settings

The expansion ROM for expansion cards is disabled on this server. To configure an expansion card, the expansion ROM must be temporarily enabled in the BIOS Setup Utility. The configuration procedures are as follows.

1 Enable the expansion ROM of the slot for the expansion card to be configured.
Start up the BIOS Setup Utility and select the "■ PCI SLOTS Configuration Submenu" (→pg.218) from the [Advanced] menu. Change [Option ROM Scan] from [Disabled] to [Enabled].

2 From the "8.2.17 Exit Menu" (→pg.232), select [Save Changes & Exit] to exit the BIOS Setup Utility.

3 Restart the server and configure the expansion card in POST.

4 After configuring the expansion card, start up the BIOS Setup Utility again and return the setting you have changed in Step 1 to the original setting.

● Fibre Channel Controller

The CD-ROM drive unit may not be recognized at the next startup after installation of Fibre Channel Controller (PG-FC106) in a Windows Server 2003 server. Perform the following steps, then it will be recognized.

1 Click [Start] → [Administrative Tools] → [Computer Management].

2 Click [Device Manager].

3 From the device list in the right pane of the window, select [DVD/CDROM drive].

4 Select [Scan for Hardware Changes] from the [Action] menu.

● IB HCA Card

When installing an IB HCA Card (PG-HSC101), set the switches on the card as follows. This card is not supported in Windows.

table: IB HCA Card Switch Settings

Switch No.	Setting							
	1	2	3	4	5	6	7	8
SW1	ON	OFF	ON	OFF	-	-	-	-
SW2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

● Remote Service Board

• Before installing a remote service board
  For preparation and procedures for installing a remote service board, refer also to the manual supplied with the board.

⚠CAUTION ⚠
• Do not connect the remote service board AC adapter until you finish installing the remote service board and close the top cover of the server. Doing so may cause a device failure, fire, or electric shock.
• When replacing remote service boards or adding other optional devices, unplug the power cable of the remote service board AC adapter from the outlet.
  Failure to do so may cause a device failure, fire, or electric shock.
• When the server is installed in an upper position in the rack, fasten the AC adapter in the rack. If the AC adapter unit is suspended, excessive force can be put on the cable, causing failures.

- Where to connect the remote service board control cable
  Connect the internal power cable and server control cable supplied with the remote service board as shown in the figure below.

[Rear]

IMPORTANT
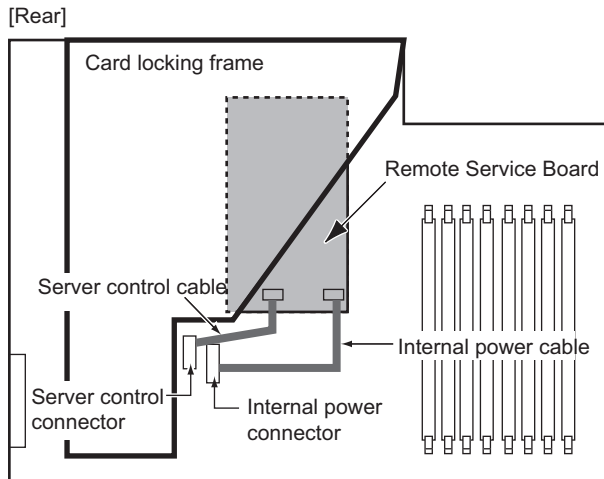
▶ To use the remote service, be sure to install ServerView.

7.5.3 How to Install an Expansion Card

This section explains how to install an expansion card.

1 Turn the power off and remove the top cover.
→"7.2 Removing and Attaching the Top Cover" (pg.166)

2 Touch a metal part of the server to discharge static electricity.

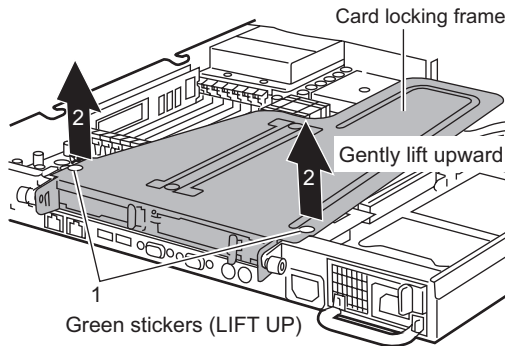*3* Loosen the screws on the rear of the server.

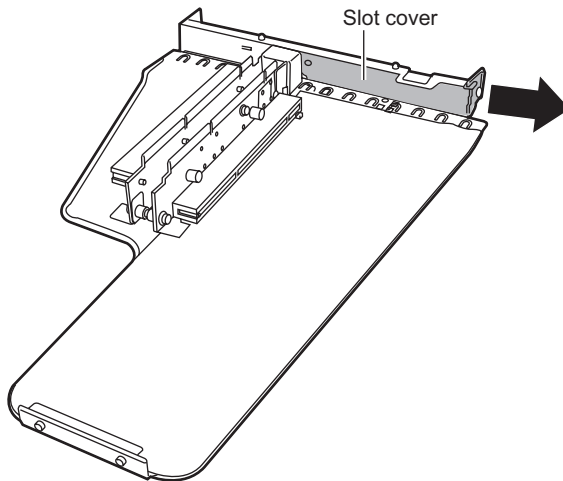
Screws
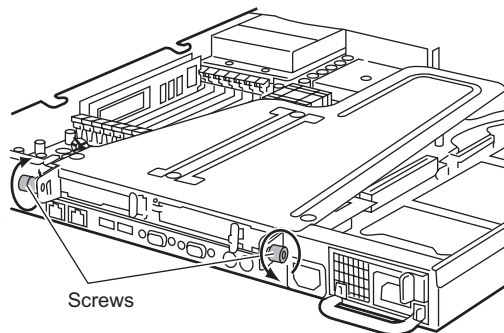
4 Remove the card locking frame.

1. Hold the card locking frame by both ends where green "LIFT UP" stickers are applied.
2. Twist your wrists inward and lift the frame gently with your fingers.

POINT

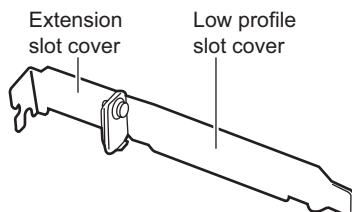▸ Remove it carefully. Parts in the frame may come off.

Card locking frame

Gently lift upward

Green stickers (LIFT UP)

5 Remove the slot cover from the card locking frame.

Slot cover

POINT

▸ The slot cover for PCI slot 1 is composed of a low profile slot cover and an extension slot cover.

Extension slot cover   Low profile slot cover


▸ Be sure to keep the removed slot cover for later use.

6 When installing a low profile card in PCI slot 1, fasten the expansion card and extension slot cover with the screw.

Use the screw that comes with the extension slot cover.

(This step is unnecessary for installing a full height expansion card.)

Expansion Card
(LowProfile)

Extension
Slot cover
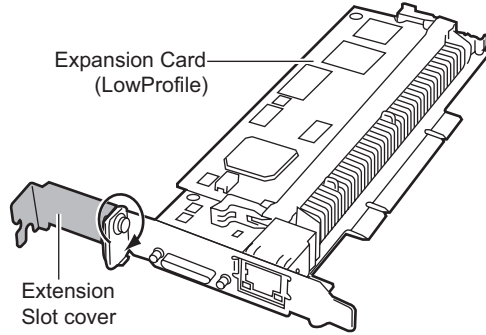
7 Insert the expansion card securely into the PCI slot.

PCIslot2

PCIslot1

Expansion Card
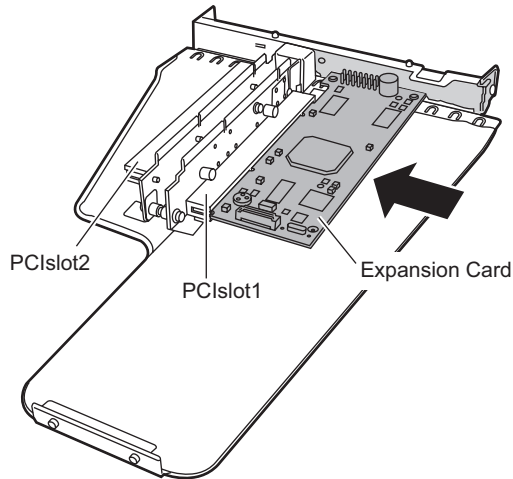
POINT

▶ When installing in both PCI slots 1 and 2, insert a card into slot 1 first.

7

Installing Internal Options

8 Turn the card locking frame over and align the connectors. Install the card locking frame by pushing on the green "PUSH" sticker area, then tighten the screws.
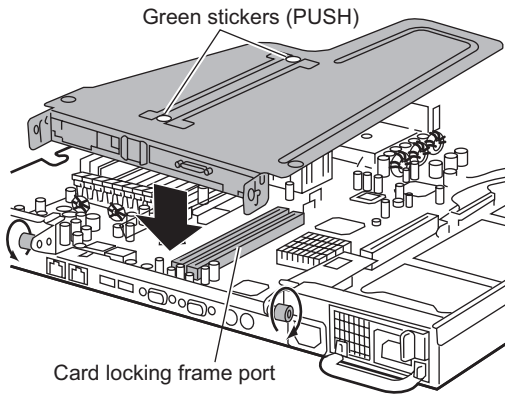
Green stickers (PUSH)

Card locking frame port

9 Attach the top cover and return the server back into the rack.

■ How to Remove an Expansion Card

To remove an expansion card, simply reverse the "7.5 Installing Expansion Cards" (→pg.179) procedures.

7.6 Installing an Internal CD-ROM Drive Unit

This section explains the procedure for installing a CD-ROM drive.

⚠WARNING | Electric Shock • Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.32)).

⚠CAUTION | • When installing a CD-ROM drive, hold it by the side.
Applying force to the top can cause failures.

• The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity.
Before handling them, first touch a metal part of the server to discharge static electricity.
• Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

7.6.1 Installable Internal CD-ROM Drive Units

■ Installable Internal CD-ROM Drive Units

The following internal CD-ROM drive unit can be installed on this server.

table: Installable Internal CD-ROM Drive Units

| Product name	Model	Remarks
CD-ROM ATAPI	PG-CD321	

■ Contents of the Optional Internal CD-ROM Drive Unit Package

Before installing the internal CD-ROM drive unit, refer to "Appendix B.3 Internal CD-ROM Drive Unit Specifications" (→pg.294) to check the contents of the optional package.

7

Installing Internal Options

7.6.2　How to Install an Internal CD-ROM Drive Unit

This section explains how to install an internal CD-ROM drive unit.

1 Turn the power off and remove the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

2 Touch a metal part of the server to discharge static electricity.

3 Release the latches on the top of the CD-ROM drive bay and remove the dummy CD-ROM.
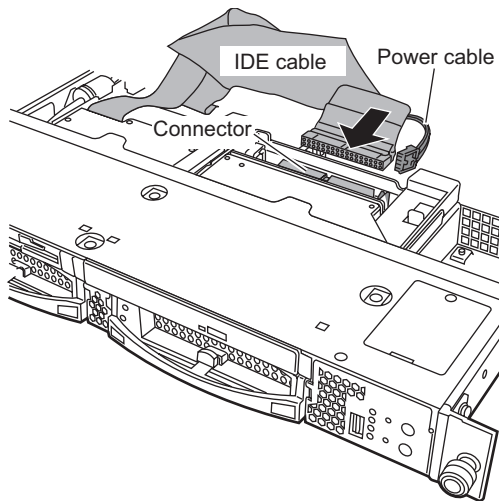

Press two latches with a driver

Dummy CD-ROM
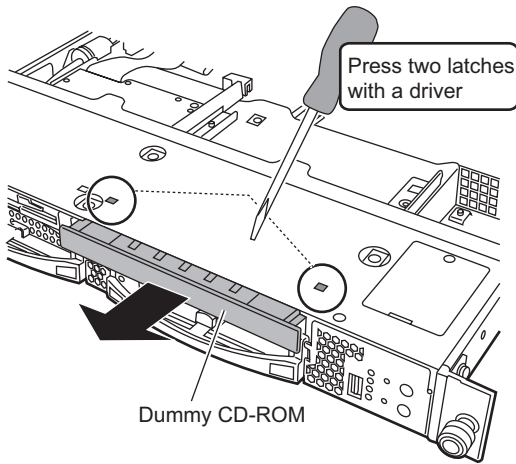
4 Insert the internal CD-ROM drive unit into the CD-ROM drive bay.

Internal CD-ROM drive unit
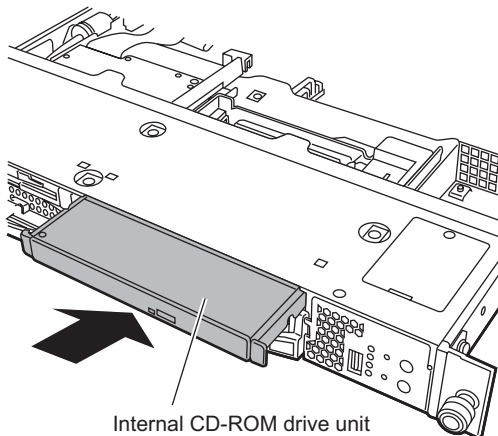
5 Connect the IDE and power cables.

Connect the IDE and power cables in the server into the connectors on the rear of the CD-ROM drive.

6 Attach the top cover and return the server back into the rack.

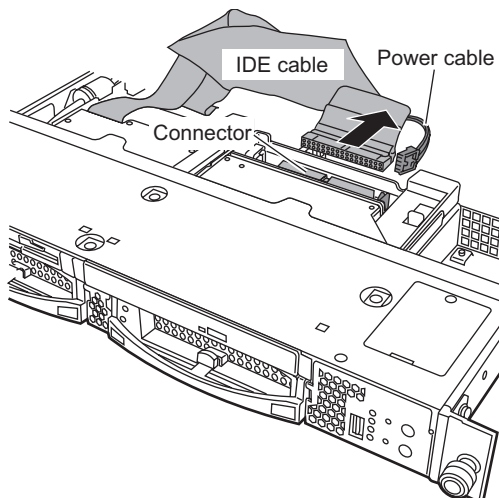→"7.2 Removing and Attaching the Top Cover" (pg.166)

■ How to Remove an Internal CD-ROM Drive Unit

1 Turn the power off and remove the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

2 Touch a metal part of the server to discharge static electricity.

3 Remove the IDE and power cables.

Remove the IDE and power cables connected to the connector on the rear of the CD-ROM drive.

4 Remove the internal CD-ROM drive unit.

Moving the lever in the direction of the arrow ejects the internal CD-ROM drive unit a little out of the bay. Remove the drive unit.

Lever

Internal CD-ROM drive unit
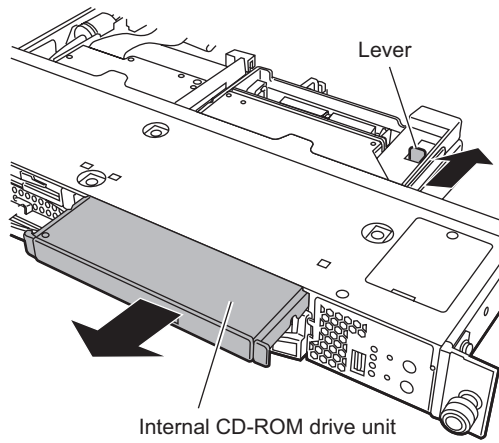
5 Install the dummy CD-ROM or a new internal CD-ROM drive unit.

6 Attach the top cover and return the server back into the rack.

→"7.2 Removing and Attaching the Top Cover" (pg.166)

7.7 Installing an Internal Hard Disk Unit

This section explains the procedure for installing internal hard disk units.

⚠CAUTION ⚠
- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.
- Before removing the unit, turn the power off and wait for about 30 seconds until the disk stops completely.

- Hard disk units may generate resonant sound temporarily after startup. This does not cause problems.
- In some operating systems, the write cache setting of the hard disk unit can be changed. However, keep it disabled. If the write cache is enabled, the data in the cache can be lost when a power failure occurs.
- When disposing of, transferring, or returning a hard disk unit, delete the data stored in it by yourself. For repairs, contact an office listed in the "Contact Information" of the "Start Guide".
- Use the unit in a dry place with low airborne dust levels.
- Rough handling of the hard disk unit can damage the stored data. To cope with any unexpected problems, always back up important data. When backing up data to another hard disk unit, you should make backups on a file or block basis.
- Take great care so that you do not hit the hard disk or bring it into contact with metallic objects.

- Do not disassemble the hard disk unit.
- Use or store the unit on a shock-and-vibration free surface.
- Keep the device away from direct sunlight, radiators or other heat sources.
- Do not use or store the unit in a place where the temperature is extremely high or low, or experiences extreme temperature changes.

7

Installing Internal Options

7.7.1 Where to Install Internal Hard Disk Units

Install internal hard disk units in 3.5-inch storage bays in the front of the server.

■ Installation Order

The numbers and SCSI IDs of the 3.5-inch storage bays are as follows.

[Front]

PSU (Option)	FDD	CD-ROM(Option)
	Bay1(ID=0)	Bay2(ID=1)

Install the internal hard disk unit in bay 1 first, then bay 2.

■ SCSI-ID Setting

SCSI-ID setting is not required for the 3.5-inch storage bay.
These 3.5-inch storage bays use hot plugs. A Single Connector Attachment2 (SCA2) connector is used as an interface with an internal hard disk unit. Integrated power and signal cable eliminated the need for troublesome cable connection work.

7.7.2 Installable Internal Hard Disk Units

■ Installable Internal Hard Disk Units

The following internal hard disk units can be installed on this server.

table: List of Installable Internal Hard Disk Units

Product name	Model	Overview
HDD U320 15K 73GB hot plug 1"	PG-HDH71K	73.4GB, 10,000rpm, Ultra320 SCSI 1 inch, supports hot plugs
HDD U320 10K 147GB hot plug 1"	PG-HDH41K	146.8GB, 10,000rpm, Ultra320 SCSI 1 inch, supports hot plugs
HDD U320 10K 300GB hot plug 1"	PG-HDK31K	300GB, 10,000rpm, Ultra320SCSI 1 inch, supports hot plugs
HDD U320 15K 73GB hot plug 1"	PG-HDH75K	73.4GB, 15,000rpm, Ultra320 SCSI 1 inch, supports hot plugs

■ Contents of the Optional Internal Hard Disk Unit Package

Before installing the internal hard disk unit, refer to "Appendix B.4 Internal Hard Disk Unit Specifications" (→pg.294) to check the contents of the optional package.

■ Connections

The figure below shows the connection of internal hard disk units.
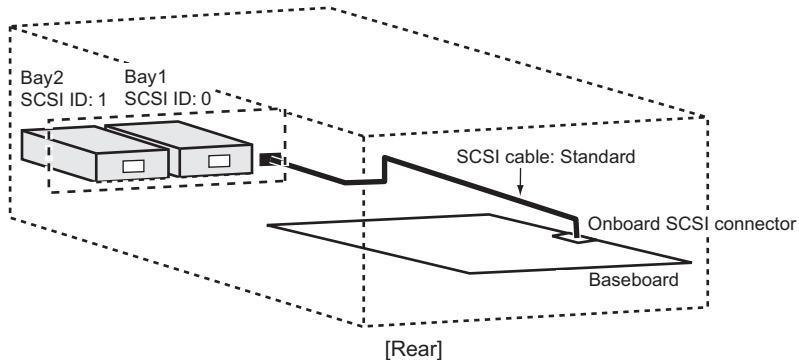
[Rear]

7.7.3 How to Install an Internal Hard Disk Unit

This section explains how to install an internal hard disk unit.

1 Open the rack door.
→"1.4.1 Opening the Rack Door" (pg.28)

2 Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.32)

3 Touch a metal part of the server to discharge static electricity.

4 Remove the dummy unit from the bay to accommodate an internal hard disk unit.
A dummy unit is inserted into a bay not occupied by an internal hard disk unit. Pull the dummy unit out towards you with the latches on both sides pressed inward.
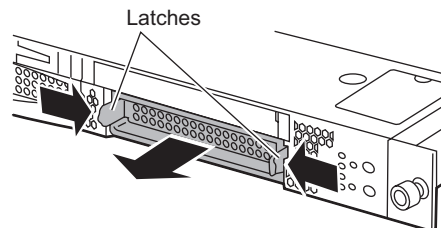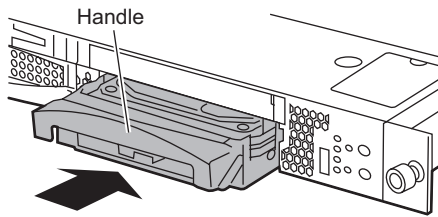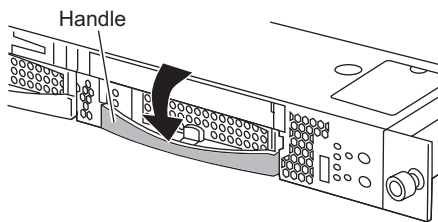

POINT
▶ Be sure to keep the removed dummy units for later use.

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Installing Internal Options

5 Install the internal hard disk unit into the server.

With the handle on the internal hard disk unit in the raised position, insert the unit all the way into the bay.

Handle

6 Push down the handle on the internal hard disk unit until it clicks into position.

Handle

■ How to Remove the Internal Hard Disk Unit

1 Open the rack door.

→"1.4.1 Opening the Rack Door" (pg.28)

2 Turn off the server and peripheral devices, then unplug the power cables from the server.

→"1.4.3 Turning Off the Server" (pg.32)

3 Touch a metal part of the server to discharge static electricity.

4 Remove the internal hard disk unit.

With the front tab of the internal hard disk unit pressed, turn the handle upward (1) and pull the hard disk unit towards you (2). To remove the internal hard disk unit, use both hands to pull it out.

1 Tab
Handle
2
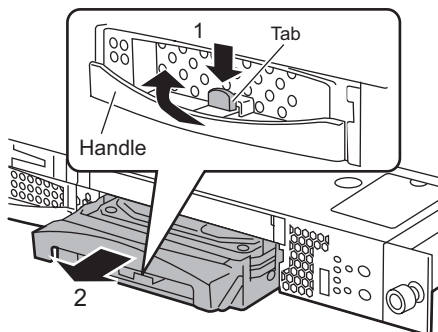
5 Install a new internal hard disk unit or a dummy unit.

→"7.7.3 How to Install an Internal Hard Disk Unit" (pg.193)

■ Replacing the Failed Internal Hard Disk Unit

When an array system (RAID1) is configured with the onboard SCSI array controller on this server, a failed hard disk unit can be replaced and restoration can be performed without turning off the server and peripheral devices (hot swappable/hot pluggable).
For details on the array system, refer to "Onboard SCSI RAID User's Guide".
The following is an outline of the procedure for replacing a failed internal hard disk unit.

1 Check the hard disk unit failure LED on each bay.

2 Touch a metal part of the server to discharge static electricity.

3 Move the handle on the failed hard disk unit up and pull it a little towards you.

4 Wait for approximately 60 seconds (until the hard disk stops rotating) and pull out the failed hard disk unit.

5 Install a new internal hard disk unit.

6 Rebuild the new internal hard disk unit.
For the rebuild procedure, refer to "Onboard SCSI RAID User's Guide".

7.8 Installing a Power Supply Unit

One power supply unit is installed in this server by default. Up to two units can be installed.

When the server has two power supply units, the redundant power supply function is enabled.

This section provides notes on adding a power supply unit and explains how to install, remove, and replace it.

⚠WARNING | Electric Shock • Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables from the server (→"1.4.3 Turning Off the Server" (pg.32)). Failure to do so may cause electric shock.
However, if the redundant power supply function is supported, you can replace a failed power supply unit as the power remains turned on.
• When removing the power supply unit, do not insert your hand into the power supply unit slot. Doing so may cause electric shock.

⚠CAUTION | • The power supply unit is heavy. Handle it with care.
If it falls, it may cause injury.

🔎POINT

▸ Replace the failed power unit as soon as possible.

7.8.1 Where to Install the Power Supply Unit

Install the power supply unit in power supply unit slot 1.

Power supply unit 0 (Standard)
Power supply unit 1
[Front]
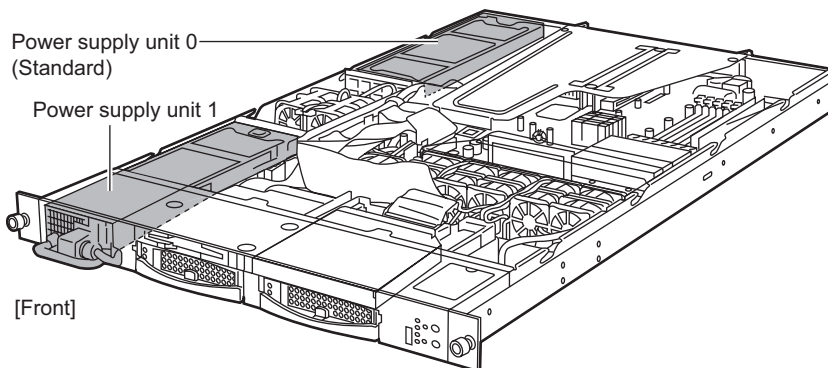
7.8.2 Installable Power Supply Unit

The following power supply unit can be installed on this server.

table: List of Installable Power Supply Units

Product name	Model	Remarks
Power Supply Module	PG-PU116	

7.8.3 How to Install a Power Supply Unit

This section explains how to install a power supply unit.

⚠CAUTION ⚠
- Areas around the power supply unit may be very hot. Turn off the power and wait for a while before starting work.

1 Turn off the server and peripheral devices (→"1.4.3 Turning Off the Server" (pg.32)). Unplug the power cable for the optional power supply unit from the rear of the server.

2 Remove the power cable from the power supply unit in the front.

[Front]

Power cable
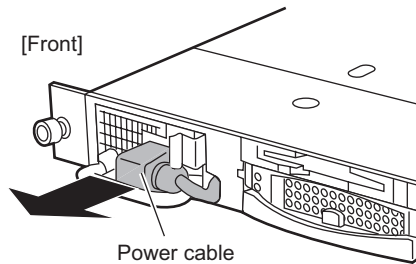
3 Remove the dummy unit while pressing the green lever.

Hold the handle on the dummy unit and pull it out.

Dummy unit

Handle

Green lever
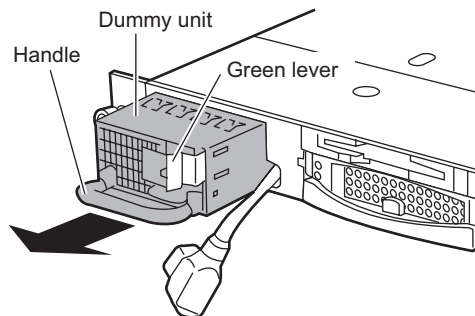
4 Install the power supply unit.

Hold the power supply unit with both hands. Insert it straight into the power supply unit slot and slide the unit slowly.
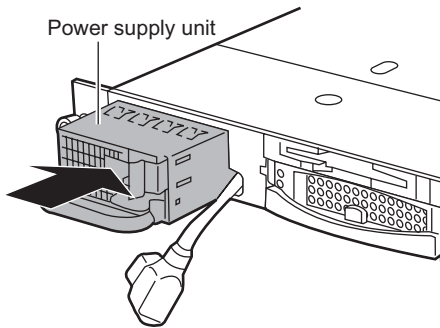
Power supply unit

5 Remove the protective sticker from the inlet.

This step is unnecessary for custom-made power supply units.

6 Plug the power cable of the power supply unit into the inlet.
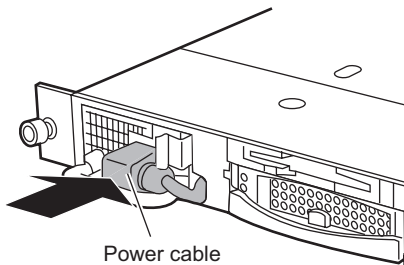
Power cable

■ How to Remove the Power Supply Unit

1 Turn off the server and peripheral devices (→"1.4.3 Turning Off the Server" (pg.32)). Unplug the power cable for the optional power supply unit from the rear of the server.

2 Remove the power cable from the power supply unit in the front.

3 Remove the power supply unit while pressing the green lever.

Hold the handle on the power supply unit and pull the unit towards you. While pulling the unit out, support it with the other hand.

4 Install a new power supply unit or a dummy unit.

5 Plug the power cable of the power supply unit into the inlet.

7.8.4 Replacing a Power Supply Unit when the Redundant Function is Enabled

When the system power supply redundant function is enabled, a failed power supply unit can be replaced without turning off the server.
After removing the power supply unit, be sure to install a new unit.

■ Power Supply Unit LED Status

Power supply unit LED
Green On: The unit is operating normally
Amber On: An AC power supply is connected
or an error is detected in the
power supply unit
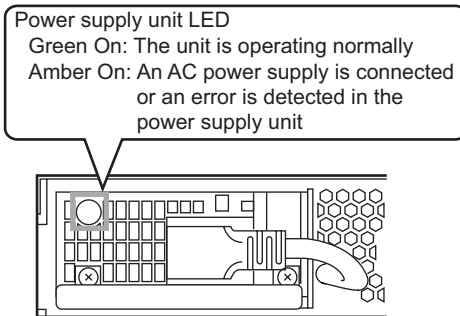
■ Replacing the Power Supply Unit

1 Remove the power cable from the failed power supply unit.

2 Remove the failed power supply unit.

"■ How to Remove the Power Supply Unit" (→pg.198)

3 Install the new power supply unit.

4 Plug the power cable into the inlet of the new power supply unit.

7.9 Replacing System Fans

This server supports the redundant system fan function. Even if one of the system fans fails, the system will continue to operate.

ServerView allows you to identify which system fan has failed. Contact an office listed in the "Contact Information" of the "Start Guide".

IMPORTANT

▶ Replace the failed system fan as soon as possible.

■ System Fan Numbers
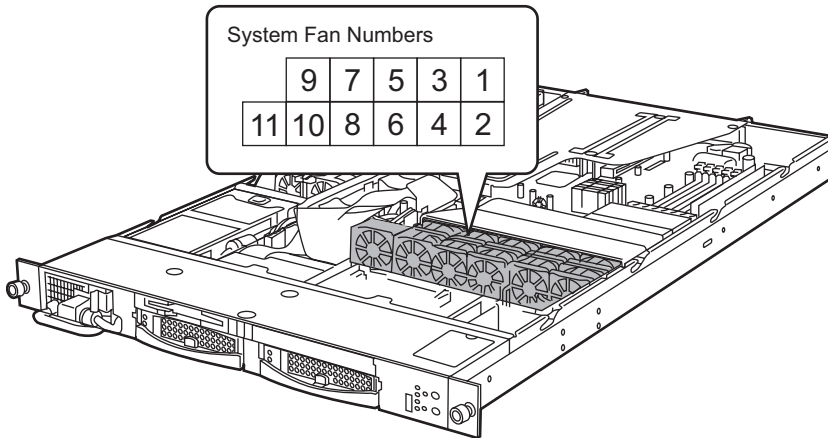
7.10 Connection of Optional Devices

This section explains connection of optional devices.

7.10.1 Connecting External SCSI Options

The following gives examples of external SCSI device connection. Note that each connection has conditions.

■ Connection of a Backup Cabinet

Connect a backup cabinet as shown in the figure below.
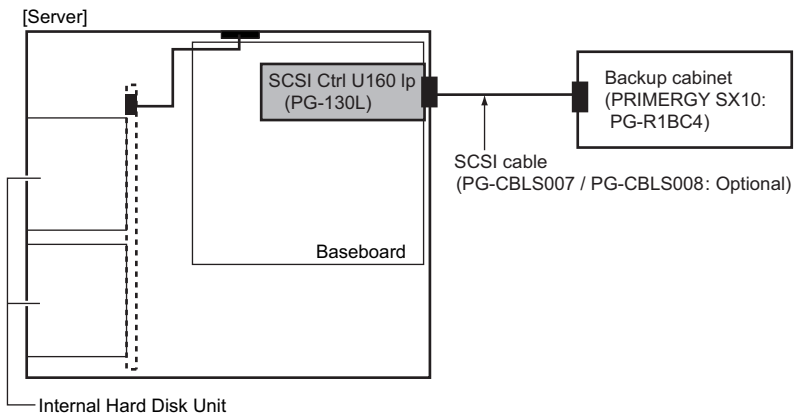
■ Connection of a Hard Disk Cabinet to Configure a Large-capacity Array System

Connect a hard disk cabinet as shown in the figure below.
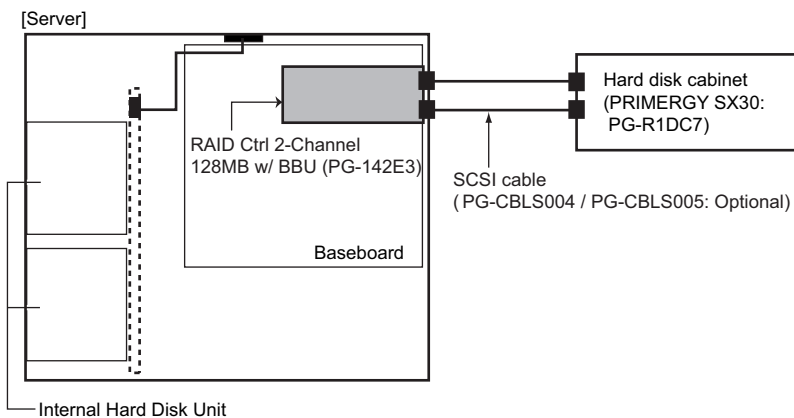
■ Connection of Other External SCSI Options

External SCSI options with different SCSI-IDs are connected in a daisy chain as shown in the following figure. Up to two devices can be connected.
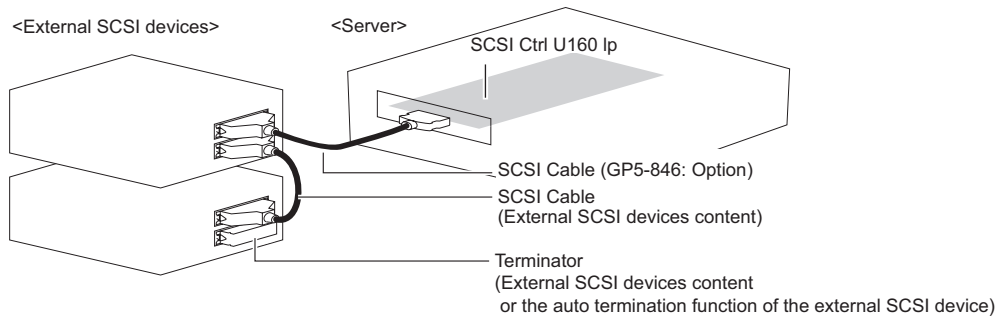
■ Notes on SCSI Options

● SCSI-ID Setting

Do not use the same setting for different devices.

● Terminator

Install a terminator to the external SCSI option at the end of the daisy chain.
Alternatively, use the auto termination function of the external SCSI option.

IMPORTANT

▶ Be sure to use the terminator supplied with a SCSI device only on that option.

● SCSI Cable

Select the SCSI cable for connecting the SCSI device depending on usage.

table: List of SCSI Cables

Device connected		Model	Length	Remarks
External SCSI device	Server			
External SCSI option (half-pitch, 68-pin)	SCSI Ctrl U160 lp (PG-130L) (VHDCI, 68-pin)	GP5-846	2.0m	Separately available
PRIMERGY SX10 (half-pitch, 68-pin)	SCSI Ctrl U160 lp (PG-130L) (VHDCI, 68-pin)	PG-CBLS007	1.8m	Separately available
PRIMERGY SX10 (half-pitch, 68-pin)	SCSI Ctrl U160 lp (PG-130L) (VHDCI, 68-pin)	PG-CBLS008	5.0m	Separately available
Hard disk cabinet PG-R1DC7 (VHDCI, 68-pin)	RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3) (VHDCI, 68-pin)	PG-CBLS004	2.0m	Separately available
Hard disk cabinet PG-R1DC7 (VHDCI, 68-pin)	RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3) (VHDCI, 68-pin)	PG-CBLS005	5.0m	Separately available

● **Daisy Chain Connection**

Daisy chain connection is impossible between devices with different SCSI interfaces. Use a SCSI card for such devices.
DLT library device cannot be connected in a daisy chain.

7

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Chapter 8

Hardware Configuration/ Utilities

This chapter explains how to make the environment settings necessary to operate the server.

8.1 Jumper Pin Settings

The jumper pin settings are as follows.

■ Jumper Pin Locations

The jumper pins are located on the baseboard as shown below.

[Rear of baseboard]
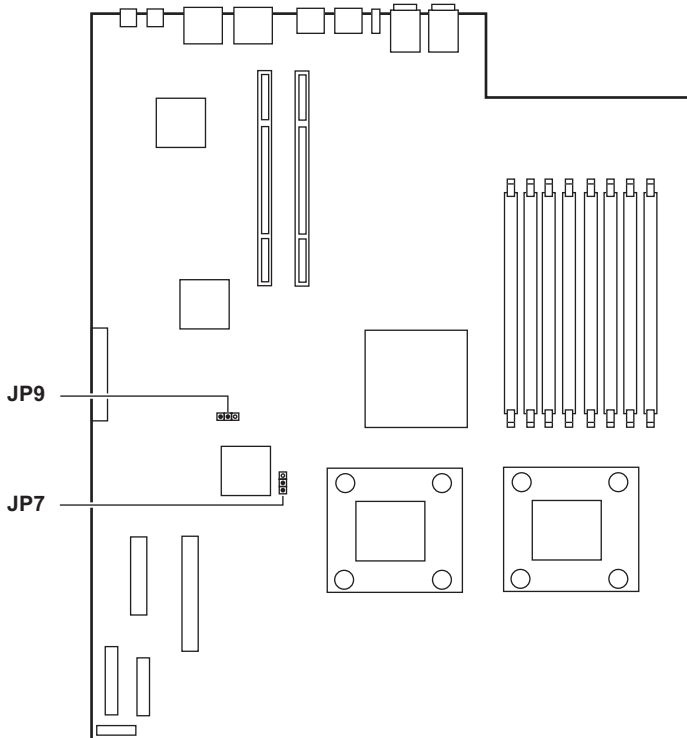
■ Jumper Settings

The jumper settings are as follows.

○ | ● | ●
1   2   3
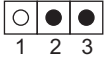
table: Jumper Settings

Jumper	Setting	Contents	Setting at the time of purchase
JP7	1-2	The server starts up with the normal BIOS information.	S
	2-3	The server starts up with the stored BIOS information.	-
JP9	1-2	The information stored on the CMOS is retained.	S
	2-3	The information stored on the CMOS is deleted.	-

S: Setting at the time of purchase

8.2 BIOS Setup Utility

This section explains settings for the BIOS Setup Utility and items regarding each setting.

8.2.1 Starting and Exiting the BIOS Setup Utility

The following explains how to start and exit the BIOS Setup Utility.

■ How to Start the BIOS Setup Utility

1 Turn the server on.
→"1.4.2 Turning On the Server" (pg.30)

2 After memory counting in POST, press the [F2] key when the message "Press
<F2> to enter SETUP <F12> to boot menu" is displayed on the screen.
The [Main] menu appears.

```
                   PhoenixBIOS Setup Utility

     Main      Advanced    Security    Server    Exit

    System Time          [HH:MM:SS]              Item Specific Help
    System Date:         [MM:DD:YYYY]

    Diskette A:          [1.44/1.25 MB 3 1/2"]


 ▶ Primary Master        [CD-ROM]
 ▶ Boot Options

    Base Memory          nnn KB
    Extended Memory      nnnnn KB




    F1  Info   ↑↓ Select Item -/+   Change Values     F9  Setup Defaults
    Esc Exit   ←→ Select Menu Enter  Select ▶ Sub-Menu  F10 Save and Exit
```

♀POINT

▶ While the message "Press <F2> to enter SETUP <F12> to boot menu" is displayed after mem-
ory counting in POST, pressing the [F12] key causes the [Boot Menu] window to appear.
The [Boot Menu] window allows you to select the disk to boot next.

```
              Boot Menu

 1.   CD-ROM Drive
 2.  +Removable Devices
 3.  +Hard Drive
      <Enter Setup>
```

● **Key Operations in the BIOS Setup Utility**

The roles of the keys used for using the BIOS Setup Utility are as follows.

table: List of Key Operations on the BIOS Setup Utility Window

Key	Role
[F1]	Displays or hides detailed information.
[Esc]	When a submenu window is displayed, exits it and returns to the previous menu. When the menu window is displayed, displays the [Exit] menu.
[↑][↓]	Switches between menus.
[←][→]	Scrolls through the menu option list.
[Enter]	Selects a setting item or displays the submenu of that item. When a submenu is displayed, pressing the [Esc] key returns to the menu window.
[-][+]	Changes the value of an item.
[F9]	Sets the items to the initial values (initial values may be different from the setting values at the time of purchase).
[F10]	Saves the settings and exits the BIOS Setup Utility.

■ **How to Exit the BIOS Setup Utility**

1 Use the [←] and [→] keys to display the [Exit] menu.

```
                    PhoenixBIOS Setup Utility

    Main      Advanced   Security   Server   Exit

    Save Changes & Exit                    Item Specific Help
    Discard Changes & Exit
    Get Default Values
    Load Previous Values
    Save Changes












    F1  Info   ↑↓  Select Item   -/+  Change Values     F9  Setup Defaults
    Esc Exit   ←→  Select Menu   Enter Execute Command   F10 Save and Exit
```

Hardware Configuration/Utilities

8
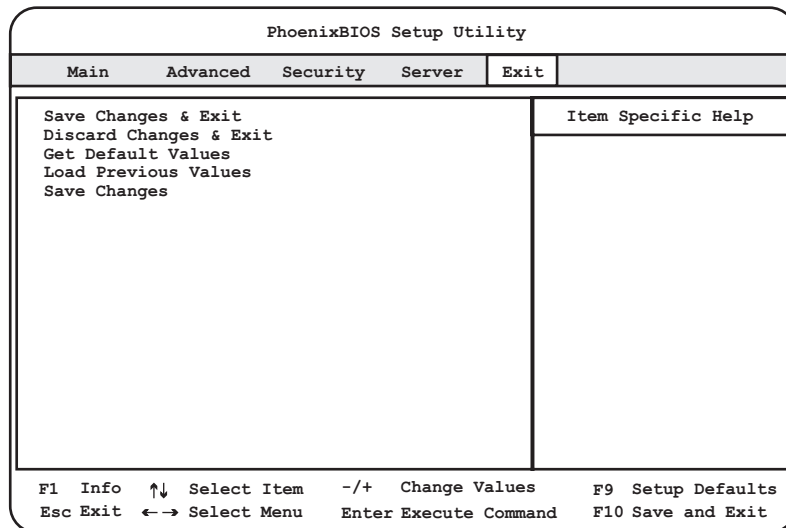
2 Use the [↑] [↓] keys to select the exit mode.

- To save configuration changes before exiting.
  Move the cursor to [Save Changes & Exit] and press the [Enter] key. The message "Save configuration changes and exit now?" is displayed.
- To exit without saving configuration changes.
  Move the cursor to [Discard Changes & Exit] and press the [Enter] key. The message "Configuration has not been saved! Save before exiting?" is displayed.

3 Use the [←] and [→] keys to move the cursor to [Yes] or [No], and press the [Enter] key.

- If you selected [Save Changes & Exit] from the [Exit] menu.
  Select [Yes] to exit. After saving changes to settings, the BIOS Setup Utility closes and the server restarts.
  Select [No] to return to the BIOS Setup Utility.
- If you selected [Discard Changes & Exit] from the [Exit] menu.
  Select [Yes] to save changes before exit. After saving changes to settings, the BIOS Setup Utility closes and the server restarts.
  Select [No] to exit without saving changes. The BIOS Setup Utility closes and the OS starts.

8.2.2 Main Menu

The [Main] menu window is initially displayed when you start the BIOS Setup Utility.
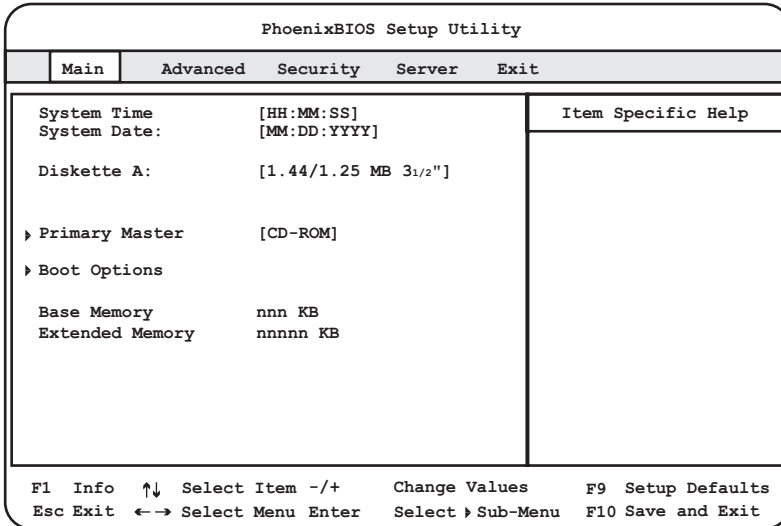Settings for time and date and for the drives are configured in the [Main] menu window.

```
                    PhoenixBIOS Setup Utility

   Main     Advanced   Security   Server   Exit

   System Time         [HH:MM:SS]              Item Specific Help
   System Date:        [MM:DD:YYYY]

   Diskette A:         [1.44/1.25 MB 3 1/2"]


 ▶ Primary Master      [CD-ROM]
 ▶ Boot Options

   Base Memory         nnn KB
   Extended Memory     nnnnn KB




 F1  Info   ↑↓ Select Item -/+    Change Values      F9  Setup Defaults
 Esc Exit   ←→ Select Menu Enter  Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Main Menu

Item	Setting	Description
System Time	Present time	The system time is set in "hours:minutes:seconds" format. The hours should be based on a 24-hour clock. For example, 6:30:00 P.M. is set as "18", "30", "00". **Note:** ▶ Repeat the procedure until the correct time is set. If a highly precise system time is necessary, install a network synchronized time system (NTP, etc.).
System Date	Present date	The system date is set in "month:day:year" format. For example, August 20, 2005 is set as "08", "20", "2005".
Diskette A	1.44/1.25MB 3 1/2" (Fixed parameter)	Sets the type of floppy disk drive A (recording density and drive size).
Primary Master	[Enter]	Sets the type and operating mode for the connected internal hard disk unit. →"8.2.3 Primary Master Submenu" (pg.212)
Boot Options	[Enter]	Sets system startup options. →"8.2.4 Boot Options Submenu" (pg.213)
Base Memory	-	Available base memory size of up to 1MB is displayed.
Extended Memory	-	Memory size of 1MB or more is displayed.

8.2.3 Primary Master Submenu

Appears when [Primary Master] is selected from the [Main] menu.

Sets the type and operating mode for the connected internal hard disk unit.
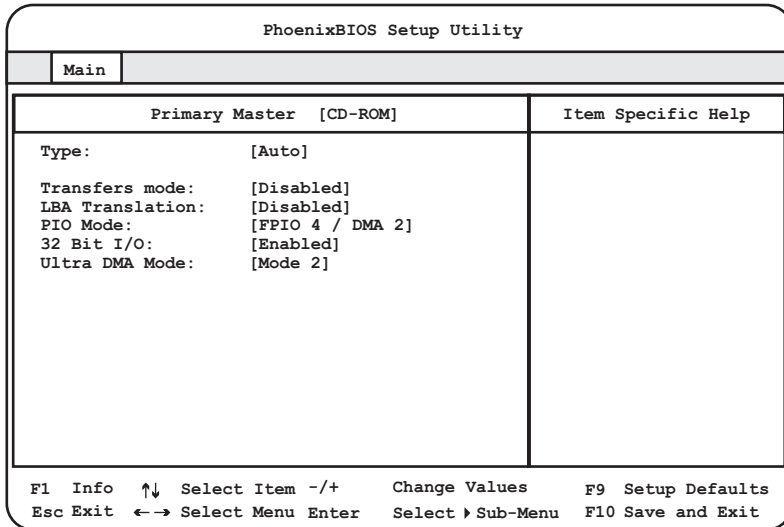
```
                    PhoenixBIOS Setup Utility

     Main

            Primary Master  [CD-ROM]              Item Specific Help

      Type:              [Auto]

      Transfers mode:    [Disabled]
      LBA Translation:   [Disabled]
      PIO Mode:          [FPIO 4 / DMA 2]
      32 Bit I/O:        [Enabled]
      Ultra DMA Mode:    [Mode 2]




     F1  Info   ↑↓  Select Item  -/+    Change Values      F9  Setup Defaults
     Esc Exit   ←→  Select Menu  Enter  Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Primary Master Submenu

Item	Setting	Description
Type	Auto (Fixed parameter)	Sets the type of the IDE device.
Transfers Mode	Disabled (Fixed parameter)	When [Type] is set to [Auto], displays the number of sectors detected and transferred at once by the server.
LBA Translation	Disabled (Fixed parameter)	Sets whether to enable or disable the LBA (Logical Block Addressing: access based on logical serial numbers).
PIO Mode	FPIO 4/DMA 2 (Fixed parameter)	Sets the PIO (Programmed I/O) data transfer mode.
32 Bit I/O	Enabled (Fixed parameter)	Specifies the bus width for data transfer between the CPU and the IDE controller.
Ultra DMA Mode	Mode2 (Fixed parameter)	Sets the DMA (Direct Memory Access) data transfer mode.

8.2.4 Boot Options Submenu

Appears when [Boot Options] is selected from the [Main] menu.
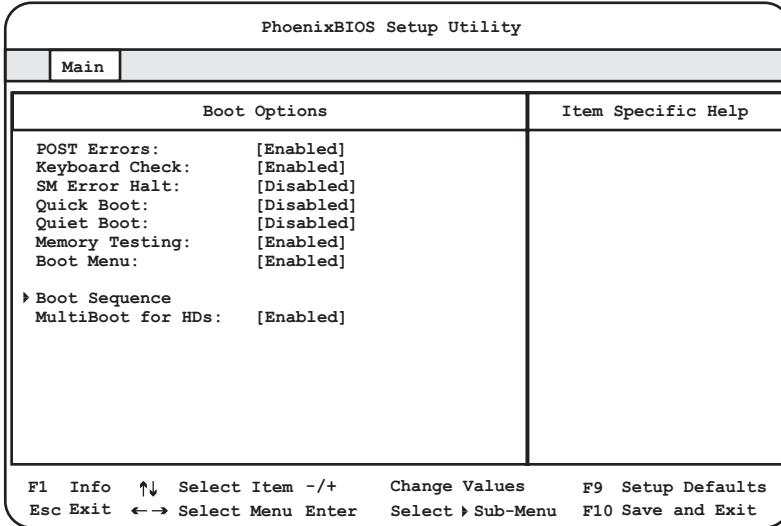
Sets system startup options.

```
                    PhoenixBIOS Setup Utility

      Main

              Boot Options                    Item Specific Help

    POST Errors:        [Enabled]
    Keyboard Check:     [Enabled]
    SM Error Halt:      [Disabled]
    Quick Boot:         [Disabled]
    Quiet Boot:         [Disabled]
    Memory Testing:     [Enabled]
    Boot Menu:          [Enabled]

  ▶ Boot Sequence
    MultiBoot for HDs:  [Enabled]




    F1  Info   ↑↓ Select Item -/+    Change Values    F9  Setup Defaults
    Esc Exit   ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Boot Options Submenu

Item	Setting	Description
POST Errors	Enabled (Fixed parameter)	Sets whether or not to stop the boot process and shut down the system, in case a POST (Power On Self Test) error is detected.
Keyboard Check	• Disabled • Enabled (at the time of purchase)	Sets whether or not to check for a keyboard during POST.
SM Error Halt	Disabled (Fixed parameter)	Sets the procedure in case an error occurs regarding the fan or temperature sensor.
Quick Boot	Disabled (Fixed parameter)	Sets whether or not to run POST in short mode.
Quiet Boot	Disabled (Fixed parameter)	Sets whether or not to display the logo screen instead of POST information.
Memory Testing	Enabled (Fixed parameter)	Sets whether or not to check the memory during POST.
Boot Menu	Enabled (Fixed parameter)	Sets whether to enable or disable the boot menu.
Boot Sequence	[Enter]	Sets the order of selected drives to boot the OS. →"■ Boot Sequence Submenu" (pg.214)
MultiBoot for HDs	Enabled (Fixed parameter)	Sets whether or not it is possible to specify the order of hard disks to boot the OS when multiple hard disk units are installed.

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■ Boot Sequence Submenu

Sets the order of selected drives to boot the OS.

table: Items on the Boot Sequence Submenu

Item	Description
(The boot order is described.) • CD-ROM Drive • Removable Devices • Hard Drive • LSI MPI Boot Support • IBA GE Slot 0330 v1220 • IBA GE Slot 0331 v1220	• [+] [-] keys: Changes the order of priority for the selected device. • [Ctrl] + [Enter] keys: Displays detailed information on all devices indicated with "+". • [Shift] + [1] keys: Enable or disable booting from the selected device. • [Enter] key: Displays detailed information on the selected device indicated with "+", or hides such information when the selected device is indicated with "-". • [LSI MPI Boot Support] can be displayed or changed when [Option ROM Scan] on the "■ PCI Device, Embedded LSI SCSI 1020 Submenu" (→pg.218) displayed from the [PCI Configuration] submenu of the [Advanced] menu is set to [Enabled]. • [IBA GE Slot 0330 v1220] and [IBA GE Slot 0331 v1220] can be displayed or changed when [Option ROM Scan] of [PCI Device, Embedded Ethernet 1/2] on the "■ Ethernet on Board Submenu" (→pg.218) displayed from the [PCI Configuration] submenu of the [Advanced] menu is set to [Enabled].

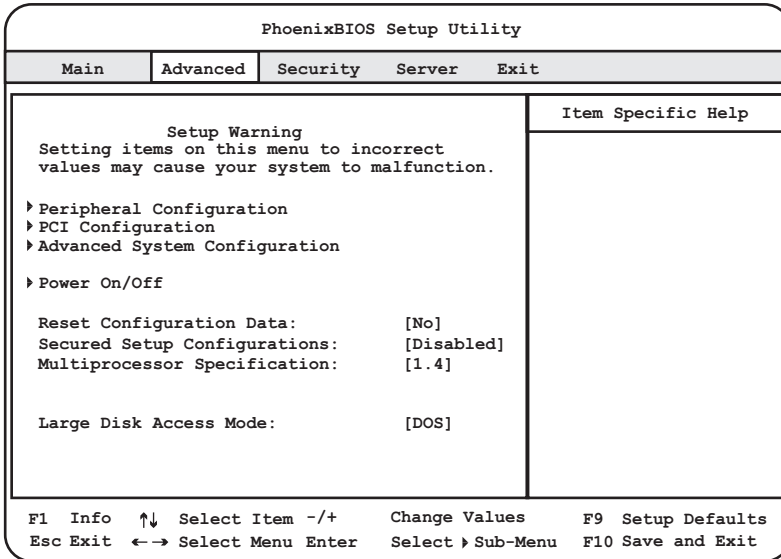## 8.2.5 Advanced Menu

Configures peripheral and PCI devices.

```
                    PhoenixBIOS Setup Utility

    Main    Advanced   Security   Server   Exit

                                              Item Specific Help
                Setup Warning
   Setting items on this menu to incorrect
   values may cause your system to malfunction.

  ▶ Peripheral Configuration
  ▶ PCI Configuration
  ▶ Advanced System Configuration

  ▶ Power On/Off

   Reset Configuration Data:        [No]
   Secured Setup Configurations:    [Disabled]
   Multiprocessor Specification:    [1.4]


   Large Disk Access Mode:          [DOS]



  F1  Info   ↑↓  Select Item -/+   Change Values   F9  Setup Defaults
  Esc Exit  ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Advanced Menu

Item	Setting	Description
Peripheral Configuration	[Enter]	Configures the serial port, parallel port, etc. →"8.2.6 Peripheral Configuration Submenu" (pg.216)
PCI Configuration	[Enter]	Configures the PCI device. →"8.2.7 PCI Configuration Submenu" (pg.217)
Advanced System Configuration	[Enter]	Configures additional settings. →"8.2.8 Advanced System Configuration Submenu" (pg.219)
Power On/Off	[Enter]	Configures power On/Off settings. →"8.2.9 Power On/Off Submenu" (pg.221)
Reset Configuration Data	• Yes • No (at the time of purchase)	Sets the initialization of the Extended System Configuration Data (ESCD) where the system resources are recorded. This setting is changed to [No] whenever the system is restarted.
Secured Setup Configurations	Disabled (Fixed parameter)	Sets whether or not to reject setting changes made by the Plug&Play OS.
Multiprocessor Specification	1.4 (Fixed parameter)	Sets the version of the multiprocessor to use.
Large Disk Access Mode	DOS (Fixed parameter)	Sets the hard disk access type supporting large-capacity hard disk drives.

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8.2.6 Peripheral Configuration Submenu

Appears when [Peripheral Configuration] is selected from the [Advanced] menu.

Configures the serial port, parallel port, etc.

```
                  PhoenixBIOS Setup Utility

         Advanced

         Peripheral Configuration              Item Specific Help

    Serial:                [Auto]
    Serial Multiplexer:    [System]
    Floppy Type:           [Local]
    Diskette Controller:   [Enabled]
    Mouse Controller:      [Auto Detect]




    F1  Info   ↑↓  Select Item  -/+    Change Values      F9  Setup Defaults
    Esc Exit   ←→ Select Menu Enter    Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Peripheral Configuration Submenu

Item	Setting	Description
Serial	• Disabled • Enabled • Auto (at the time of purchase)	Sets whether to enable or disable the serial port.
Serial Multiplexer	• System (at the time of purchase) • BMC • Shared	Changes the function of the serial port. • System Uses as a serial port. (Setting for UPS connection) • BMC Enables the remote control function. "Appendix C Remote Control Function and Console Redirection" (→pg.297) This value can be selected when [Serial] is set to [Disabled]. • Shared [System] can be switched to and from [BMC] automatically. The remote control function and console redirection can be used together.
Floppy Type	Local (Fixed parameter)	Sets when the internal floppy disk drive is used.
Diskette Controller	• Disabled • Enabled (at the time of purchase)	Sets whether to enable or disable the floppy disk controller.
Mouse Controller	• Disabled • Enabled • Auto Detect (at the time of purchase)	Sets whether or not to use the mouse connected to the mouse connector.

8.2.7　PCI Configuration Submenu

Appears when [PCI Configuration] is selected from the [Advanced] menu.

Configures the PCI device.

```
                    PhoenixBIOS Setup Utility

          Advanced

        PCI Configuration                    Item Specific Help

  ▶ Ethernet on Board

  ▶ PCI Device, Embedded LSI SCSI 1020

  ▶ PCI IRQ Configuration

  ▶ PCI Slots Configuration




    F1  Info   ↑↓  Select Item -/+    Change Values    F9  Setup Defaults
    Esc Exit  ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```
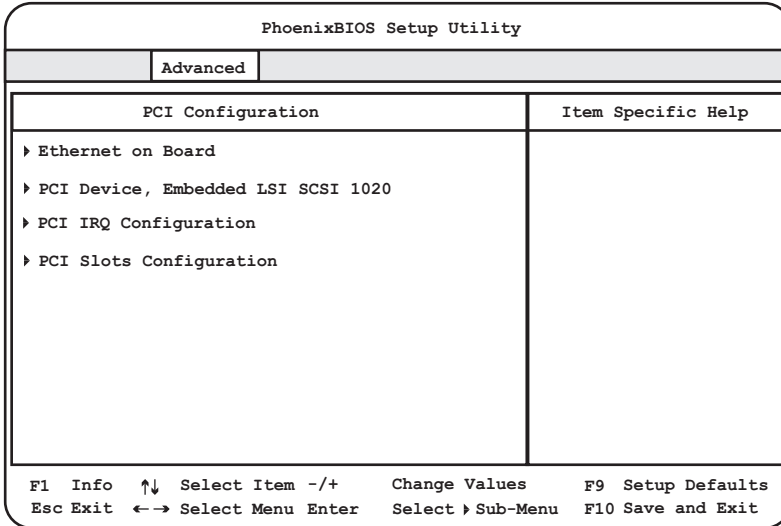
table: Items on the PCI Configuration Submenu

Item	Setting	Description
Ethernet on Board	[Enter]	Configures the LAN controller on the baseboard. →"■ Ethernet on Board Submenu" (pg.218)
PCI Device, Embedded LSI SCSI 1020	[Enter]	Configures the SCSI controller on the baseboard. →"■ PCI Device, Embedded LSI SCSI 1020 Submenu" (pg.218)
PCI IRQ Configuration	[Enter]	Sets PCI IRQ assignment for the PCI slots. →"■ PCI IRQ Configuration Submenu" (pg.218)
PCI Slots Configuration	[Enter]	Configures the PCI slots. →"■ PCI SLOTS Configuration Submenu" (pg.218)

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■ Ethernet on Board Submenu

Configures the LAN controller on the baseboard.

Ethernet 1 and Ethernet 2 have the same setting values.

table: Items on the Ethernet on Board Submenu

Item	Setting	Description
Ethernet on Board	Enabled (Fixed parameter)	Sets whether to enable or disable the LAN controller on the baseboard.
Option ROM Scan	• Disabled (at the time of purchase) • Enabled	Sets whether or not to initialize the extended ROM.
Latency Timer	0040h (Fixed parameter)	Sets the minimum guarantee time in the PCI bus clock unit for the PCI bus master method.

■ PCI Device, Embedded LSI SCSI 1020 Submenu

Configures the SCSI controller on the baseboard.

table: Items on the PCI Device, Embedded LSI SCSI 1020 Submenu

Item	Setting	Description
Device	Enabled (Fixed parameter)	Sets whether to enable or disable the SCSI controller on the baseboard.
Option ROM Scan	• Disabled • Enabled (at the time of purchase)	Sets whether or not to initialize the extended ROM.
Latency Timer	0040h (Fixed parameter)	Sets the minimum guarantee time in the PCI bus clock unit for the PCI bus master method.

■ PCI IRQ Configuration Submenu

Sets PCI IRQ assignment for the PCI slots.

table: Items on the PCI IRQ Configuration Submenu

Item	Setting	Description
PCI IRQ Line 0/VGA	Auto (Fixed parameter)	Sets a PCI IRQ for the VGA controller on the baseboard.

■ PCI SLOTS Configuration Submenu

Configures the PCI slots. PCI Slot 1 and PCI Slot 2 have the same setting values.

table: Items on the PCI SLOTS Configuration Submenu

Item	Setting	Description
Option ROM Scan	• Disabled (at the time of purchase) • Enabled	Sets whether or not to initialize the extended ROM. For notes on settings, refer to "7.5.2 Installable Expansion Cards and Notes" (→pg.180).
Latency Timer	0040h (Fixed parameter)	Sets the minimum guarantee time in the PCI bus clock unit for the PCI bus master method.

8.2.8 Advanced System Configuration Submenu

Appears when [Advanced System Configuration] is selected from the [Advanced] menu.
Configures additional settings.

```
┌─────────────────────────────────────────────────────────────────┐
│                   PhoenixBIOS Setup Utility                       │
│        ┌───────────┐                                              │
│        │ Advanced  │                                              │
│  ┌─────┴───────────┴──────────────────────┬──────────────────────┤
│  │    Advanced System Configuration        │   Item Specific Help │
│  │                                         │                      │
│  │ ▶CPU Settings:                          │                      │
│  │                                         │                      │
│  │  USB 1.1 Host Controller:   [Enabled]   │                      │
│  │  USB 2.0 Host Controller:   [Enabled]   │                      │
│  │  USB BIOS Legacy Support:   [Enabled]   │                      │
│  │  BIOS Work Space Location:  [Top of Base Memory]               │
│  │                                         │                      │
│  │  Memory Redundancy     :  [Disabled]    │                      │
│  │                                         │                      │
│  │                                         │                      │
│  │                                         │                      │
│  │                                         │                      │
│  │                                         │                      │
│  │                                         │                      │
│  └─────────────────────────────────────────┴──────────────────────┤
│  F1  Info   ↑↓ Select Item -/+   Change Values    F9  Setup Defaults │
│  Esc Exit   ←→ Select Menu Enter   Select ▶Sub-Menu  F10 Save and Exit │
└─────────────────────────────────────────────────────────────────┘
```
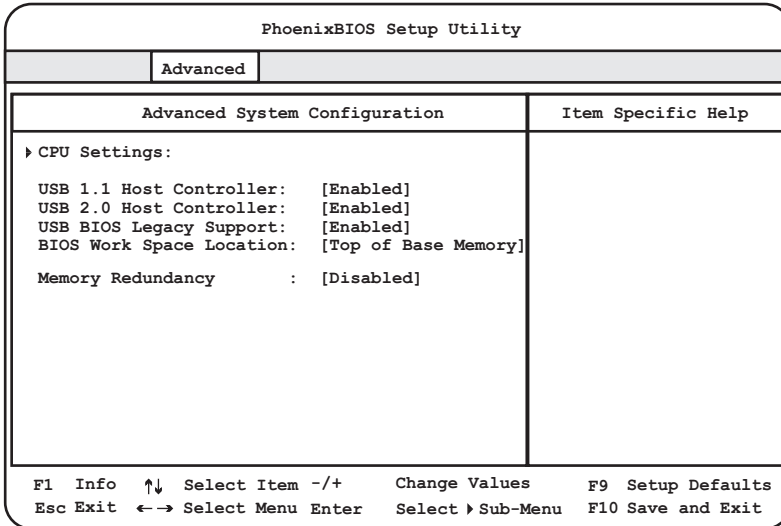
table: Items on the Advanced System Configuration Submenu

Item	Setting	Description
CPU Settings	[Enter]	Configures the CPUs. →"■ CPU Settings Submenu" (pg.220)
USB Host 1.1 Controller USB Host 2.0 Controller	• Disabled • Enabled (at the time of purchase)	Sets whether or not to use the USB host controller (2.0 or 1.1).
USB BIOS Legacy Support	• Disabled • Enabled (at the time of purchase)	Sets whether to enable or disable a USB-compatible keyboard in an MS-DOS environment. This item can be set when [USB Host 1.1 Controller] is set to [Enabled].
BIOS Work Space Location	Top of Base Memory	Selects the BIOS work space.
Memory Redundancy	Disabled (Fixed parameter)	This server cannot use this.

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■ CPU Settings Submenu

Configures the CPUs.

table: Items on the CPU Settings Submenu

Item	Setting	Description
CPU Mismatch Detection	Enabled (Fixed parameter)	Sets whether to enable or disable the CPU clock frequency checking.
Hyper-Threading	• Disabled • Enabled (at the time of purchase)	Sets whether or not to run one CPU as a dual-processing CPU. The setting [Enabled] may enhance processing performance by allowing maximum use of the CPU resources. **Note:** ▸ Some operating systems and applications do not support the Hyper-Threading function. ▸ When you change the [Hyper-Threading] setting from [Disabled] to [Enabled] on a one-CPU server, you have to change the OS to the multi-processor kernel. Refer to "9.8 Changing OS Settings" (→pg.281). This change is performed automatically on Windows Server 2003.
Fast String operations	Enabled (Fixed parameter)	Configures the CPU internal setting.
Compatible FPU Code	Disabled (Fixed parameter)	
Split Lock operations	Enabled (Fixed parameter)	
Adjacent Sector Prefetch	Enabled (Fixed parameter)	
CPU Thermal Management	Enhanced (Fixed parameter)	Configures the CPU internal setting. This item is displayed only when using the optional 3.6GHz CPU.
CPU Halt Mode (C1E)	Standard (Fixed parameter)	Configures the CPU internal setting.
Enhanced SpeedStep	Disabled (Fixed parameter)	Configures the CPU internal setting. This item is displayed only when using the optional 3.6GHz CPU.
NX Memory Protection	Disabled (Fixed parameter)	Configures the CPU internal setting. **Note:** ▸ Do not set this item to [Enabled] when the Linux OS is used.

8.2.9 Power On/Off Submenu

Appears when [Power On/Off] is selected from the [Advanced] menu. Configures power On/Off
settings.

```
                    PhoenixBIOS Setup Utility

          Advanced

          Power On/Off                         Item Specific Help

  Power On Source
   Remote:              [Enabled]
   Resume On Times:     [Off]
   Resume Time:         [00:00:00]
   LAN:                 [Enabled]

  Power Failure Recovery:[Previous State]




 F1  Info   ↑↓ Select Item -/+    Change Values     F9  Setup Defaults
 Esc Exit  ←→ Select Menu Enter   Select ▶Sub-Menu  F10 Save and Exit
```
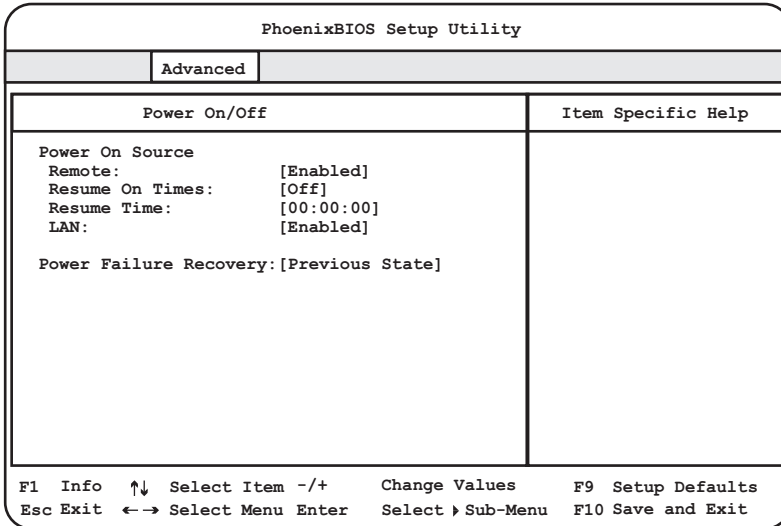
table: Items on the Power On/Off Submenu

Item	Setting	Description
Remote	• Disabled • Enabled (at the time of purchase)	Sets whether or not the power can be turned on when the modem (connected to the serial port) receives a ring signal.
Resume On Times	• Off (at the time of purchase) • On	Sets whether or not to resume from suspend mode at the specified time.
Resume Time	-	Specifies the time to resume in the 24-hour "hours:minutes:seconds" format.
LAN	• Disabled • Enabled (at the time of purchase)	Sets whether or not to enable the power to be turned on via LAN.
Power Failure Recovery	• Always ON • Always OFF • Previous State (at the time of purchase)	Sets the server power status after system down due to power failure or after power recovery by the UPS. **Note:** ▶ Set this item to [Always ON] when a UPS is used.

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8.2.10 Security Menu

Configures the security features.

```
              PhoenixBIOS Setup Utility

   Main      Advanced    Security    Server    Exit

                                              Item Specific Help
   Setup Password        Not installed
   System Password       Not installed

   Set Setup Password:    [Enter]
   Set System Password:   [Enter]
   Setup Password Lock:   [Standard]
   System Password Mode:  [System]

   SETUP prompt:          [Enabled]
   Virus Warning:         [Disabled]
   System Load:           [Standard]

   Diskette Write:        [Enabled]
   Flash Write:           [Enabled]




   F1  Info   ↑↓  Select Item -/+    Change Values    F9  Setup Defaults
   Esc Exit   ←→  Select Menu Enter  Select ▶Sub-Menu  F10 Save and Exit
```

table: Items on the Security Menu

Item	Setting	Description
Setup Password/ System Password	-	Displays whether or not each password is set. [Not installed] appears when the password is not set, and [Installed] appears when it is set.
Set Setup Password	[Enter]	Sets a setup password. The setup password prevents unauthorized startup of the BIOS Setup Utility. For procedures for setting, changing, and deleting the password, refer to "9.4.2 Security against Unauthorized Use" (→pg.272).
Set System Password	[Enter]	Sets a system password. The system password prevents unauthorized access to the system. A setup password must be specified. For procedures for setting, changing, and deleting the password, refer to "9.4.2 Security against Unauthorized Use" (→pg.272).

Setup Password Lock	• Standard (at the time of purchase)
	 • Extended
		Sets the scope protected by the setup password. A setup password must be specified.
		 • Standard
		   You will be requested to enter the setup password while the BIOS Setup Utility is starting up.
		 • Extended
		   You will be requested to enter the setup password when the BIOS Setup Utility starts up. The BIOS for the expansion cards is locked during POST.

System Password Mode	System	Sets the scope protected by the system password. A setup password and a system password must be specified.
SETUP prompt	• Disabled • Enabled (at the time of purchase)	Sets whether or not to display a setup message "<F2> BIOS Setup" in the [POST] window when the system restarts.

table: Items on the Security Menu

Item	Setting	Description
Virus Warning	Disabled (Fixed parameter)	Sets whether or not to check for changes in the boot sector of the hard disk drive after the previous system startup. If the boot sector is changed without a clear reason, it is necessary to scan the system for computer viruses with a virus detection program.
System Load	• Standard (at the time of purchase) • Diskette/CDROM Lock	Sets whether to enable or disable system startup from a floppy disk or CD-ROM. This setting is possible when a setup password is specified.
Diskette Write	• Disabled • Enabled (at the time of purchase)	Sets whether to enable or disable write protect on a floppy disk.
Flash Write	• Disabled • Enabled (at the time of purchase)	Sets whether to enable or disable write protect in the system BIOS.

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8.2.11 Server Menu

Configures the server settings.

```
                      PhoenixBIOS Setup Utility

     Main       Advanced    Security    Server    Exit

    O/S Boot Timeout:               [Disabled]       ┌─────────────────────┐
      Mode                          [Continue]       │  Item Specific Help │
      Timeout value                 [0]              │                     │
    ASR&R Boot Delay(min):          [2]              │                     │
    Power Cycle Delay:              [5]              │                     │
    Boot Retry Counter:             [3]              │                     │
    Diagnostic System:              [Disabled]       │                     │
    Critical Temperature Monitoring:[Disabled]       │                     │
    Memory scrub:                   [Enabled]        │                     │
    BIOS runtime logging:           [Enabled]        │                     │
    Clear Screen Delay(sec):        [5]              │                     │
                                                     │                     │
    ▶ IPMI                                           │                     │
                                                     │                     │
    ▶ CPU Status                                     │                     │
    ▶ Memory Status                                  │                     │
    ▶ LAN Setting                                    │                     │
                                                     │                     │
    ▶ Console Redirection                            │                     │
                                                     └─────────────────────┘

    F1  Info   ↑↓ Select Item -/+    Change Values      F9  Setup Defaults
    Esc Exit  ←→ Select Menu Enter   Select ▶Sub-Menu  F10 Save and Exit
```

table: Items on the Server Menu

Item	Setting	Description
O/S Boot Timeout	• Disabled (at the time of purchase) • Enabled	Sets whether to enable or disable the OS Boot Monitoring function, when ServerView is installed to the OS. If for some reason booting the operating system is interrupted when this function is enabled, the system will automatically restart. The OS Boot Monitoring function can also be enabled or disabled from ServerView. **Note:** ▶ If ServerView is not installed to the OS, be sure to set to [Disabled]. If the setting is enabled, the server may automatically turn off or restart unexpectedly. Even when ServerView is installed on the OS, if starting the system while the Server Management Tools disk is inserted, be sure to disable the OS Boot Monitoring function. If the system is started with this function enabled, the server may automatically turn off or restart improperly. If the OS Boot Monitoring function is needed, it should be reset to enabled before resuming normal server operation. When setting this function, refer to "ServerView User's Guide" to fully learn about its specifications, in order to use it properly with the correct settings.

table: Items on the Server Menu

Item	Setting	Description
Mode	• Continue (at the time of purchase) • Reset • Power Cycle	Sets the operation to be performed when a timeout occurs during OS boot monitoring. • Continue: The boot sequence is continued. • Reset: The server restarts automatically and starts POST. • Power Cycle: The server turns off automatically. The server turns on automatically after the time specified in [Power cycle Delay].
Timeout Value	• 0 (at the time of purchase) • 1-100	When [O/S Boot Timeout] is set to [Enabled], the system restarts automatically if the OS fails to start up within the time set for this item.
ASR&R Boot Delay (min)	• 2 (at the time of purchase) • 1-30	Sets the standby time for startup after shutdown due to trouble (such as overheating) in minutes. The system restarts after the set standby time.
Power Cycle Delay	5 (Fixed parameter)	Sets the time until the server is turned on after it is turned off.
Boot Retry Counter	• 3 (at the time of purchase) • 0-7	Sets the maximum number of OS startup retries.
Diagnostic System	Disabled (Fixed parameter)	Sets the operation to be performed when the number of system boot retries exceeds the number specified in [Boot Retry Counter].
Critical Temperature Monitoring	Disabled (Fixed parameter)	Sets whether or not to turn the power off in the event of abnormal temperature.
Memory scrub	Enabled (Fixed parameter)	Sets whether or not the BIOS detects and corrects memory errors.
BIOS runtime logging	Enabled (Fixed parameter)	Sets whether or not the CPU, memory, or PCI slot errors are recorded in the error log.
Clear Screen Delay (sec)	• 5 (at the time of purchase) • 0-31	Sets the time (seconds) to display the last BIOS message screen before the OS starts up.
IPMI	[Enter]	Configures the Baseboard Management Controller (BMC). →"8.2.12 IPMI Submenu" (pg.226)
CPU Status	[Enter]	Displays whether or not to allow the use of the installed CPU. →"8.2.13 CPU Status Submenu" (pg.227)
Memory Status	[Enter]	Sets whether or not to allow the use of the installed memory. →"8.2.14 Memory Status Submenu" (pg.228)
LAN Setting	[Enter]	Sets the LAN for remote operations with Remote Control Service. →"8.2.15 LAN Setting Submenu" (pg.229)
Console Redirection	[Enter]	Configures detailed settings for console redirection. →"8.2.16 Console Redirection Submenu" (pg.230)

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8.2.12 IPMI Submenu

Appears when [IPMI] is selected from the [Server] menu.

Configures the Baseboard Management Controller (BMC).

```
                    PhoenixBIOS Setup Utility

                                          Server

            IPMI                              Item Specific Help

   IPMI Specification Version    n.n
   BMC Firmware                  n.nn.nnnnnnnn
   Clear System Event Log        [Disabled]
   Event Log Full Mode           [Overwrite]
   Existing Event Log number     nnn
   Remaining Event Log number    nnn

  ▶ System Event Log
  ▶ System Event Log (list mode)
  ▶ Real-time Sensor Data




   F1  Info  ↑↓ Select Item -/+    Change Values    F9  Setup Defaults
   Esc Exit  ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the IPMI Submenu

Item	Setting	Description
IPMI Specification Version	-	Displays the IPMI Specification version.
BMC Firmware	-	Displays the BMC Firmware version.
Clear System Event Log	• Disabled (at the time of purchase) • Enabled	Deletes the logs stored in the system event log.
Event Log Full Mode	• Overwrite (at the time of purchase) • Maintain	Set the operation to be performed when the system event log becomes full. • Overwrite: Logs are overwritten in old to new order. • Maintain: Existing logs are maintained. No new logs are recorded. **Note:** ▶ Before changing the setting for this item, be sure to use [Clear System Event Log] to delete the system event log.
Existing Event Log number	-	Displays the number of recorded logs.
Remaining Event Log number	-	Displays the number of logs that can be recorded.
System Event Log	[Enter]	Displays the contents of the system event log. For details on contents, refer to "9.3 System Event Log" (→pg.267).
System Event Log (list mode)	[Enter]	Lists the contents of the system event log. For details on contents, refer to "9.3 System Event Log" (→pg.267).
Real-time Sensor Data	[Enter]	Displays temperature and voltage sensor data.

8.2.13 CPU Status Submenu

Appears when [CPU Status] is selected from the [Server] menu.

This submenu sets whether or not to allow the use of the installed CPU.

```
              PhoenixBIOS Setup Utility

                          Server

         CPU Status                    Item Specific Help

    CPU 0 Status:      [Enabled]
    CPU 1 Status:      [Enabled]

    F1  Info   ↑↓  Select Item -/+    Change Values    F9  Setup Defaults
    Esc Exit   ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```
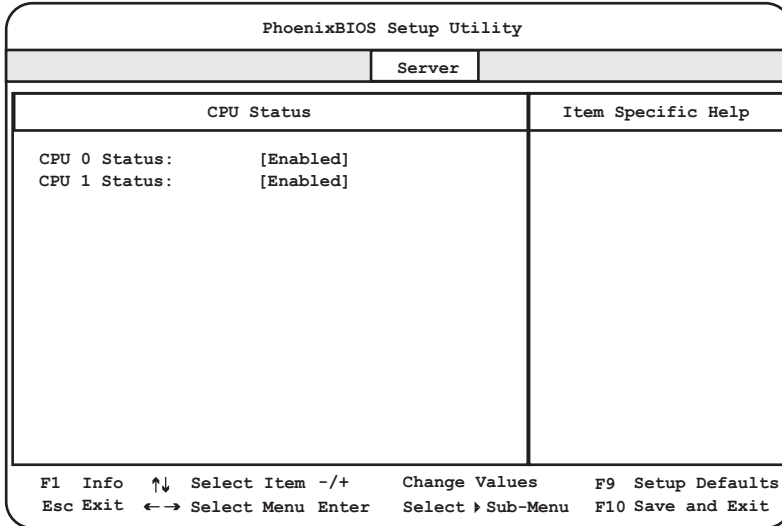
table: Items on the CPU Status Submenu

Item	Setting	Description
CPU 0 Status CPU 1 Status	• Enabled (at the time of purchase) • Disabled • Failed	Sets whether or not to allow the use of CPUs installed in the CPU sockets. This must not be set to [Disabled] or [Failed].

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8.2.14 Memory Status Submenu

Appears when [Memory Status] is selected from the [Server] menu.

This submenu sets whether or not to allow the use of the installed memory.

```
                      PhoenixBIOS Setup Utility

                                  Server

              Memory Status                    Item Specific Help

      ChannelA
      DIMM A1:           [Enabled]
      DIMM A2:           [Enabled]
      DIMM A3:           [Enabled]
      DIMM A4:           [Enabled]
       ChannelB
      DIMM B1:           [Enabled]
      DIMM B2:           [Enabled]
      DIMM B3:           [Enabled]
      DIMM B4:           [Enabled]




      F1  Info   ↑↓  Select Item  -/+    Change Values     F9  Setup Defaults
      Esc Exit  ← →  Select Menu Enter   Select ▶ Sub-Menu F10 Save and Exit
```
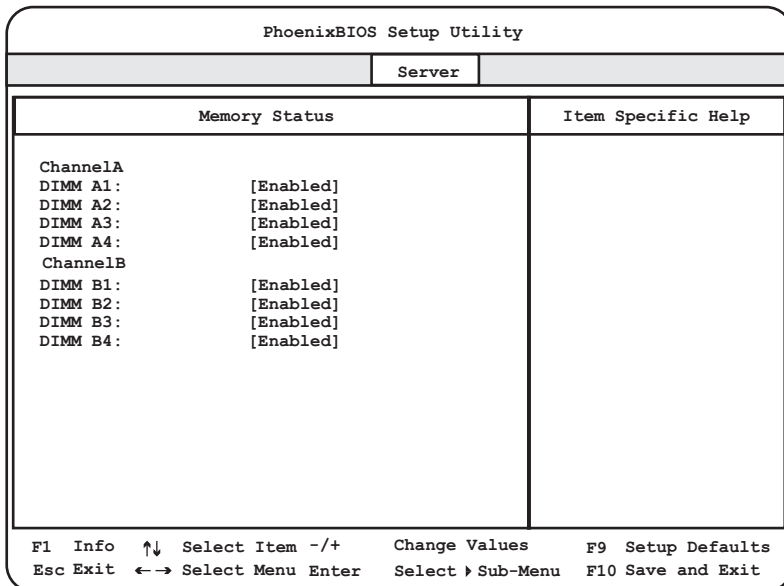
table: Items on the Memory Status Submenu

Item	Setting	Description
DIMM A1	• Enabled (at the time of purchase) • Disabled • Failed	Sets whether or not to allow the use of memory in Memory Slots A1 to B4. For memory slot locations, refer to "7.4.1 Where to Install the Memory Modules" (→pg.175). This must not be set to [Disabled] or [Failed].
DIMM A2		
DIMM A3		
DIMM A4		
DIMM B1		
DIMM B2		
DIMM B3		
DIMM B4		

8.2.15 LAN Setting Submenu

Appears when [LAN Setting] is selected from the [Server] menu.

```
                    PhoenixBIOS Setup Utility
┌─────────────────────────────┬────────────────────────────┐
│                             Server                        │
├────────────────────────────────────┬──────────────────────┤
│         Console Redirection         │  Item Specific Help  │
│                                     │                      │
│  local IP Address:      [nnn.nnn.nnn.nnn]                  │
│  Subnet Mask:           [nnn.nnn.nnn.nnn]                  │
│  Gateway Address:       [nnn.nnn.nnn.nnn]                  │
│  User ID 1 Password     [              ]                   │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
│                                     │                      │
├─────────────────────────────────────┴──────────────────────┤
│  F1  Info   ↑↓  Select Item  -/+   Change Values   F9  Setup Defaults │
│  Esc Exit   ←→  Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit │
└─────────────────────────────────────────────────────────────┘
```

table: Items on the LAN Setting Submenu

Item	Setting	Description
local IP Address	nnn.nnn.nnn.nnn	Enter the IP address.
Subnet Mask	nnn.nnn.nnn.nnn	Enter the subnet mask.
Gateway Address	nnn.nnn.nnn.nnn	Enter the gateway address.
User ID 1 Password	-	This server cannot use this.

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8.2.16 Console Redirection Submenu

Appears when [Console Redirection] is selected from the [Server] menu.

This submenu configures detailed settings for console redirection.

```
                    PhoenixBIOS Setup Utility

                                Server

            Console Redirection                 Item Specific Help

    Console Redirection Port:       [Disabled]
    Port:                            Serial
    Media Type:                     [Serial]


    Console connection:             [Direct]
    Baud Rate                       [9600]
    Protocol:                       [VT100+]
    Flow Control                    [None]
    Mode:                           [Enhanced]






    F1  Info   ↑↓  Select Item  -/+   Change Values     F9  Setup Defaults
    Esc Exit  ←→ Select Menu Enter   Select ▶ Sub-Menu  F10 Save and Exit
```

table: Items on the Console Redirection Submenu

Item	Setting	Description
Console Redirection Port	• Disabled (at the time of purchase) • Enabled	Sets whether to enable or disable console redirection.
Port	Serial	Displays the serial port to be used for console redirection. This item appears when [Console Redirection Port] is set to [Enabled].

Media Type	• Serial (at the time of purchase)
	• LAN
		Sets the connection type for console redirection.
		This item appears when [Console Redirection Port] is set to [Enabled].
		• Serial
		  Console redirection is performed via the serial port.
		• LAN
		  Console redirection is performed via the LAN.

Console connection	Direct (Fixed parameter)	Specifies the method of connection with the console. This item appears when [Console Redirection Port] is set to [Enabled].

table: Items on the Console Redirection Submenu

Item	Setting	Description
Baud Rate	• 300 • 1200 • 2400 • 9600 (at the time of purchase) • 19.2K • 38.4K • 57.6K • 115.2K	Sets the baud rate for console redirection. This item appears when [Console Redirection Port] is set to [Enabled].
Protocol	• VT100 • VT100, 8 bits • PC-ANSI, 7 bits • PC-ANSI • VT100+ (at the time of purchase) • VT-UTF8	Sets the console type for console redirection. This item appears when [Console Redirection Port] is set to [Enabled].
Flow Control	• None (at the time of purchase) • XON/XOFF • CTS/RTS	Sets the flow control. This item appears when [Console Redirection Port] is set to [Enabled].
Mode	• Standard • Enhanced (at the time of purchase)	Sets the range of use for console redirection. This item appears when [Console Redirection Port] is set to [Enabled].

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8.2.17 Exit Menu

Exits BIOS Setup.

```
┌─────────────────────────────────────────────────────────────────┐
│              PhoenixBIOS Setup Utility                          │
├─────────────────────────────────────────────────────────────────┤
│   Main      Advanced   Security    Server   │ Exit │            │
├─────────────────────────────────────────────┴──────┴───────────┤
│  Save Changes & Exit                      │  Item Specific Help  │
│  Discard Changes & Exit                   │                      │
│  Get Default Values                       │                      │
│  Load Previous Values                     │                      │
│  Save Changes                             │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
├───────────────────────────────────────────┴──────────────────── │
│  F1   Info   ↑↓  Select Item    -/+  Change Values    F9  Setup Defaults │
│  Esc Exit  ←→ Select Menu     Enter Execute Command   F10 Save and Exit  │
└─────────────────────────────────────────────────────────────────┘
```
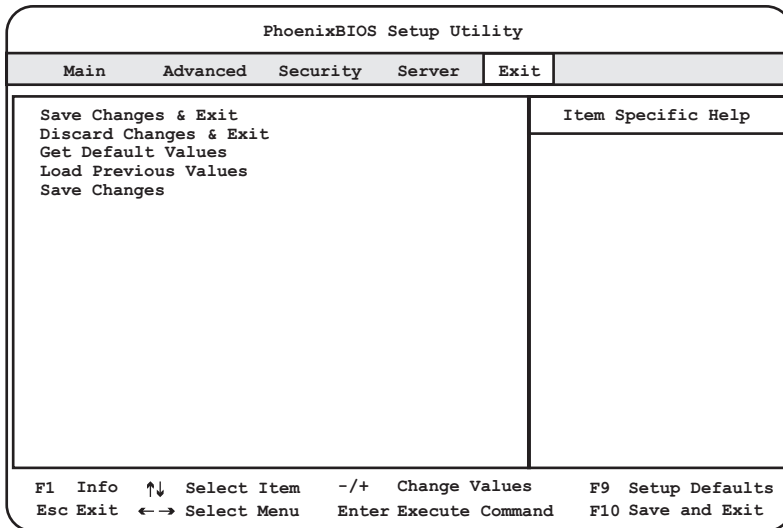
table: Items on the Exit Menu

Item	Description
Save Changes & Exit	Saves the current settings on the CMOS and exits the BIOS Setup Utility. The server restarts at the same time.
Discard Changes & Exit	Exits the BIOS Setup Utility without saving current settings. Previously saved settings remain valid.
Get Default Values	Loads and displays the default settings for the server.
Load Previous Values	Loads and displays the settings that were enabled when the BIOS Setup Utility started up.
Save Changes	Save the settings on the CMOS.

8.3 SCSI Setup Utility

This section explains settings for the SCSI Setup Utility and items regarding each setting. When an array is configured with the onboard SCSI array controller, settings in the SCSI Setup Utility must be made.

8.3.1 Starting and Exiting the SCSI Setup Utility

The following explains how to start and exit the SCSI Setup Utility.

■ How to Start the SCSI Setup Utility

1 During server startup (POST), press the [Ctrl] + [C] keys while the message "Press Ctrl-C to Start LSI Logic Configuration Utility..." is displayed on the screen.

The [Main] menu appears.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx          ◄——— Header
<Boot Adapter List> <Global Properties>

LSI Logic Host Bus Adapters

Adapter    PCI    Dev/   Port     IRQ   NVM    Boot    LSI Logic   RAID
           Bus    Func   Number                Order   Control     Status
<1020/1030 3      28>    3000     10    Yes    0       Enabled     --

                                                                              ┐
                                                                              │
                                                                              ├— List area
                                                                              │
                                                                              ┘

   Esc=Abort/Exit       ArrowKeys=Select Item       -/+=Change[Item]
                        Home/End=Select Item         Enter=Execute<Item>
   F2=Menu
```

2 Select the menu or adapter to be configured.

- Pressing the [Esc] key moves the cursor from the header to the adapter list area.
  Use the [←] and [→] keys to select between [Boot Adapter List] and [Global Properties].
- Pressing the [F2] key moves the cursor from the list area to the header. When you move the cursor for the first time, press the [F2] key twice.
  Use the [↑] and [↓] keys to select the adapter to be configured.

3 Press the [Enter] key.
The selected menu appears.

4 Configure menus and adapters.

● **Key Operations in the SCSI Setup Utility**

table: List of Key Operations on the SCSI Setup Utility Window

Key	Role
[↑] [↓] [←] [→] [+] [−]	Moves the cursor to the item to set.
[Home]	Moves the cursor to the top item on the screen.
[End]	Moves the cursor to the bottom item on the screen.
[Enter]	Selects an item. When the item has a submenu, the submenu is displayed.
[Esc]	Moves to the [Exit] window from the [Main] menu, or to the previous screen from other menus.
[F2]	Moves the cursor to the main menu.

POINT

▶ When you have changed settings in the SCSI Setup Utility, write down the setting items or print screenshots with changed setting.

■ How to Exit the SCSI Setup Utility

1 Returns to the [Main] menu.

Pressing the [Esc] key in a menu window displays a confirmation message for saving the changes. Perform either of the following.

• To save the current settings

Select [Save changes then exit this menu] and press the [Enter] key.

• To discard the current settings

Select [Discard changes then exit this menu] and press the [Enter] key.

2 Press the [Esc] key.

The [Exit] window appears.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx




              Are you sure you want to exit?
              <Cancel Exit>
              <Exit the Configuration Utility>
              Save changes then exit this menu
              Discard changes then exit this menu




   Esc=Abort/Exit      ArrowKeys=Select Item      -/+=Change[Item]
                       Home/End=Select Item       Enter=Execute<Item>
```

- To exit the SCSI Setup Utility
  Select [Exit the Configuration Utility] and press the [Enter] key.
  The SCSI Setup Utility closes and the system restarts.
- To return to the [Main] menu
  Select [Cancel Exit] and press the [Enter] key.
- To save the current settings
  Select [Save changes then exit this menu] and press the [Enter] key.
- To discard the current settings
  Select [Discard changes then exit this menu] and press the [Enter] key.

POINT

To configure an optional SCSI card or SCSI devices on the SCSI bus
- ▶ For information on the SCSI card utility, refer to the manual for the card.
- ▶ In the SCSI Setup Utility, configure each SCSI bus.

8.3.2 Main Menu

This section explains items on the [Main] menu.

The [Main] menu has three submenus. To select a submenu, move the cursor to the submenu and press the [Enter] key.

```
LSI Logic MPT SCSI Setup Utility    Version    MPTBIOS-IMn.nn.nn
<Boot Adapter List> <Global Properties>

LSI Logic Host Bus Adapters

Adapter    PCI    Dev/   Port    IRQ    NVM    Boot    LSI Logic   RAID
           Bus    Func   Number                Order   Control     Status
<LSI1030    1      18>    2000     9     Yes    0       Enabled     --








   Esc=Abort/Exit        ArrowKeys=Select Item       -/+=Change[Item]
                         Home/End=Select Item        Enter=Execute<Item>
   F2=Menu
```

table: Items on the Main Menu

Item	Description
Boot Adapter List	Configures startups from the SCSI adapter. →"8.3.3 Boot Adapter List Menu" (pg.238)
Global Properties	Configures SCSI BOIS operation during POST. →"8.3.4 Global Properties Menu" (pg.239)

table: Items on the Main Menu

Item	Description	
SCSI adapter names	Selecting an adapter name displays the submenu for setting detailed configuration information of the SCSI adapter on the SCSI bus. →"8.3.5 Adapter Properties Menu" (pg.240)	
	Adapter	Displays the name of the SCSI adapter.
	PCI Bus	Displays the number of the PCI bus where the SCSI adapter is connected.
	Dev/Func	Displays the PCI device/function of the SCSI adapter.
	Port Number	Displays the I/O port address of the SCSI adapter. On this server, "2000/2001" is displayed.
	IRQ	Displays the IRQ (IRQ level) of the SCSI adapter.
	NVM	Displays whether or not the SCSI adapter has NVRAM for storing settings. On this server, "Yes" is displayed.
	Boot Order	Displays the boot order of SCSI adapters. When the server starts up, startable SCSI devices connected to SCSI cards (onboard SCSI) are searched for in ascending numerical order. SCSI devices start up in order of detection.
	LSI Logic Control	Displays whether or not the SCSI adapter can use standard device drivers.
	RAID Status	Displays the status of an array, if configured. • Optimal Indicates that the disk array is operating normally. • Degraded Indicates that the disk array is operating without redundancy because of a failure of one hard disk unit. Replace the failed hard disk unit and restore (rebuild) the system to the "Optimal" status as soon as possible. For details, refer to "Onboard SCSI RAID User's Guide". • Failed Indicates that the disk array is not operating. This occurs when two of the hard disk units configuring a disk array have failed. In this case, the data stored on these hard disk units are lost. • Resyncing Indicates that the disk array is being rebuilt or initialized. If this occurs, exit the SCSI Setup Utility and start up the OS immediately. If the OS is not installed, install the OS. When the OS is started up or OS installation is started, the rebuilding operation starts (restarts if it is suspended).

8.3.3 Boot Adapter List Menu

Configures startups from the SCSI adapter.

Select this menu from the header of the [Main] menu.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx


Boot Adapter List
Insert=Add an adapter     Delete=Remove an Adapter

      Adapter          PCI   DEV/   Boot  Current  Next
                       BUS   Func   Order Status   Boot
      1020/1030        3     28     [0]   On       [ON]


Hit Instert To Select an adapter from this list:
           <1020/1030            3        28>










  Esc=Abort/Exit      ArrowKeys=Select Item      -/+=Change[Item]
                      Home/End=Select Item       Enter=Execute<Item>
```

table: Items on the Boot Adapter List Menu

Item	Setting	Description
Boot Order	0 (Fixed parameter)	Specifies the boot order for SCSI devices. Use the [-] and [+] keys to change the order.
Next Boot	• ON (at the time of purchase) • OFF	Sets whether to enable or disable the SCSI controller BIOS.

8.3.4 Global Properties Menu

Configures SCSI BOIS operation during POST.

Select this menu from the header of the [Main] menu.

```
 LSI Logic MPT SCSI Setup Utility    Version    MPTBIOS-IMx.xx.xx


 Global Properties


      Pause When Boot Alert Displayed     [Yes]
      Boot Information Display Mode        [Verbose]
      Negotiate with devices              [Supported]
      Video Mode                          [Color]
      Support Interrupt                   [Hook interrupt, the Default]

      <Restore Defaults>




   Esc=Abort/Exit       ArrowKeys=Select Item       -/+=Change[Item]
                        Home/End=Select Item         Enter=Execute<Item>
```

table: Items on the Global Properties Menu

Item	Setting	Description
Pause When Boot Alert Displayed	Yes (Fixed parameter)	When a hard disk failure occurs during POST and the logical drive becomes critical, the startup will be paused. Use this configuration by setting Yes. **Note:** ▶ When this configuration is set No, the following failure may occur. While using the server without replacing a hard disk and restarting the system after a hard disk failed, if the second hard disk failed, the first failed hard disk may startup depending on the fail mode. This may result in the system starting up with old data and losing the new data.
Boot Information Display Mode	Verbose (Fixed parameter)	Sets the amount of host adapter or SCSI device information to be displayed in the POST window.
Negotiate with devices	Supported (Fixed parameter)	Sets the SCSI negotiation method.
Video Mode	• Color (at the time of purchase) • Monochrome	Sets whether or not to display information on the SCSI Setup Utility in color or monochrome during POST.
Support Interrupt	Hook Interrupt, the Default (Fixed parameter)	Displays the IRQ mode.

8.3.5 Adapter Properties Menu

Sets detailed configuration information on each SCSI adapter.

From the list area on the [Main] menu, select the SCSI adapter to configure.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx


 Adapter Properties


 Adapter    PCI    Dev/
            Bus    Func
 1020/1030   3      28


            <Device Properties>
            <RAID Properties> <Synchronize Whole Mirror> <Rebuild>
            Host SCSI ID                [7]
            SCSI Bus Scan Order         [Low to High (0..Max)]
            Removable Media Support     [None]
            CHS Mapping                 [SCSI Plug and Play Mapping]
            Spinup Delay (Secs)         [2]
            Secondary Cluster Server    [No]
            Termination Control         [Auto]
            <Restore Defaults>



   Esc=Abort/Exit      ArrowKeys=Select Item      -/+=Change[Item]
                       Home/End=Select Item       Enter=Execute<Item>
```

table: Items on the Adapter Properties Menu

Item	Setting	Description
Device Properties	Configures devices connected to SCSI adapters. Press the [Enter] key to display the submenu. →"8.3.6 Device Properties Submenu" (pg.241)	
RAID Properties	Configures or deletes an array.	
Synchronize Whole Mirror	The server does not support these items. Do not select these item.	
Rebuild		
Host SCSI ID	7 (Fixed parameter)	Sets the range of host adapter SCSI IDs.
SCSI Bus Scan Order	Low to High (0..Max) (Fixed parameter)	Sets the order of SCSI devices to be scanned during POST.
Removable Media Support	None (Fixed parameter)	Sets whether or not to support a removable disk unit (MO disk unit) as a SCSI disk drive in the SCSI Setup Utility.
CHS Mapping	SCSI Plug and Play Mapping (Fixed parameter)	Specifies the CHS information mapping method.
Spinup Delay (Secs)	2 (Fixed parameter)	Sets device startup intervals.
Secondary Cluster Server	No (Fixed parameter)	Sets whether or not to use this server in a cluster configuration.
Termination Control	Auto (Fixed parameter)	Sets the SCSI bus terminal.
Restore Defaults	The server does not support this.	

8.3.6 Device Properties Submenu

Configures devices connected to SCSI adapters.

```
 LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx


Device Properties
SCSI Device     Restore    Mt/Sec MB/Sec Data  Scan Scan   Dis-    SCSI    Queue
ID   Identifer Defaults                  Width ID   LUNs>0  connect TimeOut Tags
0    -         <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
1              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
2              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
3              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
4              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
5              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
6              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
7    1020/1030 <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
8    SDR CEM318<Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
9              <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
10             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
11             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
12             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
13             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
14             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]
15             <Defaults> [160]   320    [16]  [Yes] [Yes]  [On]    < 10>   [On]


   Esc=Abort/Exit      ArrowKeys=Select Item      -/+=Change[Item]
                       Home/End=Select Item       Enter=Execute<Item>
```

table: Items on the Device Properties Submenu

Item	Setting	Description
Restore Defaults	-	The server does not support this.
MT/Sec	• 0 • 5 • 10 • 20 • 40 • 80 • 160 (at the time of purchase)	Sets the maximum transfer rate the host adapter supports.
MB/Sec	-	Displays the maximum transfer speed the host adapter supports.
Data Width	16 (Fixed parameter)	Sets the maximum transfer width the host adapter supports.
Scan ID	• Yes (at the time of purchase) • No	Sets whether or not to scan devices.
Scan LUNs>0	Yes (Fixed parameter)	Sets whether or not to scan LUNs.
Disconnect	On (Fixed parameter)	Sets whether or not the host adapter disconnects SCSI devices from the SCSI bus.
SCSI Timeout	10 (Fixed parameter)	Sets the SCSI timeout time (seconds).
Queue Tags	On (Fixed parameter)	Sets whether or not to support tagged command queues.

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8.3.7 RAID Properties Submenu

Sets an array configured with the onboard SCSI array controller.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx


RAID Properties       Array:      SCSI ID:     Size(MB):
SCSI Device Identifier   Array    Hot       Status      Predict      Size
ID                       DISK?    Spare                 Failure      (MB)
0    -                   [No]     [No]       ──────      ──        ***MB
1                        [No]     [-]
2                        [No]     [-]
3                        [No]     [-]
4                        [No]     [-]
5                        [No]     [-]
6                        [No]     [-]
7    1020/1030           [No]     [-]
8    SDR CEM318          [No]     [-]
9                        [No]     [-]
10                       [No]     [-]
11                       [No]     [-]
12                       [No]     [-]
13                       [No]     [-]
14                       [No]     [-]
15                       [No]     [-]


   Esc=Abort/Exit       ArrowKeys=Select Item      -/+=Change[Item]
                        Home/End=Select Item       Enter=Execute<Item>
```

table: Items on the RAID Properties Submenu

Item	Setting	Contents
Array Disk?	• Yes (array type/Linux array type) • No (other types than array type/Linux array type)	Sets whether or not the hard disk unit configures a disk array.
Hot Spare	No (Fixed parameter)	The server does not support this.
Status	-	Displays the hard disk status when a disk array is configured. • [Primary] or [OK] Indicates that the hard disk unit is operating normally. • Failed Indicates that the hard disk unit has failed. • Out of Sync Indicates that the hard disk unit being rebuilt. • Missing Indicates that the hard disk unit is not installed or recognized.
Size (MB)	-	Indicates the hard disk capacity.

■ Creating a Disk Array

Only a RAID1 disk array can be created with the onboard SCSI array controller.

IMPORTANT

▶ Use two internal hard disk units of the same type and with the same capacity to create a RAID1 disk array. Do not use internal hard disk units different in type from each other.
▶ Be sure to install RAID Management Tool to configure a disk array. For details, refer to "Onboard SCSI RAID User's Guide".
▶ When configuring a disk array using an internal hard disk units that have been used in another system and may contain partition information or other data, connect the hard disk units to another system and perform low-level formatting before physically connecting them to this server. For details, refer to the manual supplied with the system to be used.
▶ Upon creation of a disk array, exit the SCSI Setup Utility and start OS installation immediately. As soon as a disk array is created, array initialization will start. However, if the SCSI Setup Utility is still running, the initialization will take long time (even for several days).
The onboard SCSI array controller in this server supports background initialization (BGI). Start OS installation without waiting for the initialization to complete. For array initialization, refer to "Onboard SCSI RAID User's Guide".

1 Display [RAID Properties] submenu from the [Adapter Properties] menu.
→"8.3.5 Adapter Properties Menu" (pg.240)

2 Select [Array Disk?] for SCSI ID0 and press the [+] or [-] key.

3 When the following message appears, press the [F3] key.
F3 - Keep Data (Create 2 disk array)
Delete - Erase Disk (Create 2 to 6 disk array)

4 Select [Array Disk?] for SCSI ID1 and press the [+] or [-] key.

IMPORTANT

▶ If the following message appears, the internal hard disk unit for creating a disk array already contains data. Check if the data are important. Once a disk array is created, the data on the internal hard disks will be deleted.
WARNING:Data on drive will be LOST!
Press DELETE if data loss OK or any key to cancel

5 Press the [Esc] key.

6 When [RAID Properties Changed] appears, select [Save changes then exit this menu] and press the [Enter] key.

■ Deleting a Disk Array

1 Select [RAID Properties] submenu from the [Adapter Properties] menu.
→"8.3.5 Adapter Properties Menu" (pg.240)

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2 Select [Delete Array] and press the [Enter] key.

```
LSI Logic MPT SCSI Setup Utility   Version   MPTBIOS-IMx.xx.xx
<Next Array> <Delete Array> <Add/Delete Hot Spare> <Activate Array>

RAID Properties      Array:      SCSI ID:      Size(MB):

SCSI Device Identifier   Array    Hot        Status      Predict    Size
ID                       DISK?    Spare                   Failure    (MB)
0   -                    [Yes]    [No]       Primary       ──      ***MB
1                        [Yes]    [No]       Out of Sync   ──      ***MB






     Esc=Abort/Exit          ArrowKeys=Select Item       -/+=Change[Item]
                             Home/End=Select Item         Enter=Execute<Item>
```

3 When [RAID Properties Changed] appears, select [Save changes then exit this menu] and press the [Enter] key.

8.3.8 Formatting hard disks physically

On this server, physical formatting cannot be performed from SCSI Setup Utility menus.
When a hard disk must be formatted physically, perform the following procedure to run the SCSI Low-Level Format Utility.

IMPORTANT

- ▸ Physical formatting deletes all data on the selected hard disk. Make a backup before using this function.
- ▸ Physical formatting of a hard disk takes time. Once started, it cannot be aborted. Perform it when you have enough time.
- ▸ Do not turn off or reset the server during physical formatting. Otherwise, the hard disk may be damaged.
- ▸ The "Server Management Tools" disk supplied with the server is required.
- ▸ Hard disk units in a disk array configuration cannot be physically formatted. Delete the disk array beforehand. For the procedure for deleting a disk array, refer to "■ Deleting a Disk Array" (→pg.243).

■ Performing Physical Formatting

1 Insert the "Server Management Tools" disk and turn the server on.

2 When a command prompt is displayed, enter the following command and press the [Enter] key.
   A:\SMTOOL\>ASPIFMT.EXE

The SCSI Low-Level Format Utility starts up.

3 Use the [↑] [↓] keys to select the hard disk to format physically. Press the [Space] key to set it.

4 Press the [Tab] key to move to the [Format] button. Press the [Space] key.

A confirmation message is displayed.

5 Read the message, select [Format] again, and press the [Space] key.

Physical formatting starts.

When the physical formatting completes, a completion message appears.

6 Check that [Failed Formatting Drive(s)] indicates "none." Select [Exit] and press the [Space] key.

7 Select [Exit] again and press the [Space] key.

The physical formatting has completed when a command prompt appears.

The server can be turned off.

Chapter 9

Operation and Maintenance

9

This chapter explains the operations necessary
after starting to use this server as well as daily
care and maintenance.

9.1 Daily Maintenance

This section explains how to check the status of the operating server, as well as how to perform daily maintenance.

9.1.1 Checking the Server Condition

Use the status LED or server monitoring tool to check the server status.

■ Checking Each LED

This server is equipped with LEDs that display various hardware conditions.
Check the server status via each LED after starting the server. For positions and functions of each status LED, refer to "1.3 Component Names and Functions" (→pg.21).

■ Server Monitoring Tool (ServerView)

ServerView is software to monitor that the server hardware is in a normal state to protect important server resources. When using ServerView, the server hardware is monitored all the time. If an error that could cause trouble is detected, the administrator is notified in real-time for early detection. This allows the server administrator to remove a system error early and avoid trouble.
For an overview and installation of ServerView and other high reliability tools, refer to "1.2.2 High Reliability Tools" (→pg.19) and "Chapter 6 High Reliability Tools" (→pg.159).

9.1.2 Cleaning

Clean the server and optional devices periodically to prevent failures.

⚠ WARNING	Electric Shock ⚡	• Before cleaning, turn off the server and unplug the power cables from the outlets. Also power off peripherals and disconnect them from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.32)).

■ Cleaning the Server

Wipe with a soft, dry cloth. For stains that do not come off with a dry cloth, wipe with a cloth lightly dampened with a mild detergent. Once the stain has been removed, wipe off any remaining detergent with a cloth dampened with water. When wiping the server, be sure that no moisture enters the server machine.
Do not use solvents. Use a mild detergent only. Otherwise, the server may be damaged.
Use a vacuum cleaner periodically to prevent dust buildup in ventilation holes.

🔎 POINT

▸ In dusty environments, dust piles up on the front and rear panels of the server over short periods. Install the server in a different location to avoid failures.

■ Cleaning the Server Interior

In dusty environments, dust deposits in the server. Dust deposits may cause a server failure, fire, or electric shock. To keep the PRIMERGY server in good condition, use a vacuum cleaner periodically to remove dust deposits.

POINT

Cleaning components

▶ CPUs: Dust deposits must be removed because it will impair the cooling performance.
▶ Fans: Remove dust from and around the fans.
▶ Memory/expansion cards: Remove dust between memory modules and between expansion cards. Remove dust from the connector before adding a memory module or an expansion card.
▶ Internal hard disk units/5-inch internal options: Remove dust deposits from units and devices. Tape devices are particularly susceptible to dust and may cause failures. Install them in a clean environment.

⚠ **WARNING** — Electric Shock ⚡
• Do not disassemble the PSU when cleaning the server interior. Doing so may cause failures or electric shock.

IMPORTANT

▶ Be careful when removing components such as CPUs, memory modules, or hard disk units. Be sure to install parts and cables in the original position.
▶ Leaving dust brushed off or blown with air in the server can cause failure. Be sure to take it out of the server.

■ Cleaning the Keyboard

Wipe with a soft, dry cloth.

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■ Cleaning the Mouse

Wipe the surface with a soft, dry cloth. If the tracking ball does not spin or roll smoothly, remove the ball and clean it.

● Cleaning Method

1 Remove the cover from under the mouse.

Remove the cover under the mouse by rotating it in the direction of the arrow.

2 Remove the ball and rinse it with water.

Flip the mouse over to remove the ball. Afterwards, wash it with water.
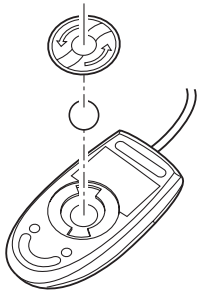
3 Clean the inside of the mouse.

Wipe the inside of the mouse, the roller, and the bottom cover with a damp cloth.

Roller
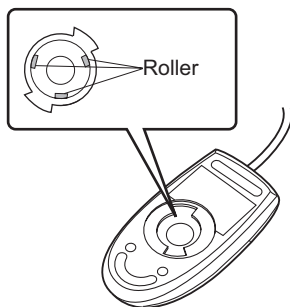
4 Insert the ball and apply the cover.

After the ball and inside of the mouse are dry, insert the ball and apply the cover.

■ Cleaning the Floppy Disk Drive

Prolonged use of the floppy disk drive accumulates dust on the device head (the part which reads/writes data). A dirty head can impair the ability to read/write data to/from a floppy disk correctly. Clean the head once every three months.

■ Optional Devices

For cleaning optional devices, refer to the manual of each device.

9.2 Troubleshooting

This section explains the resolutions when the server is not running properly or when error messages are displayed.

For each situation, refer to the following. If the problem is not resolved after performing the following troubleshooting, contact an office listed in the "Contact Information" of the "Start Guide".
When contacting an office listed in the "Contact Information" of the "Start Guide", refer to "9.9.2 Contacting Maintenance Support" (→pg.286) and collect the required information.

- Hardware problems.
    →"9.2.1 Hardware Troubleshooting" (pg.252)
- Error messages.
    →"9.2.2 Error Messages" (pg.255)
- Software problems.
    →"9.2.3 Software Troubleshooting" (pg.260)

9.2.1 Hardware Troubleshooting

This section explains hardware related troubleshooting. If the server does not operate properly or if a failure is suspected, check the following.
For optional devices, refer to the manual included with the optional device.

■ Server

● The server does not power on, or the power LED on the front of the server does not light up.

Check to see whether the power cable is properly connected to the outlet.
For instructions on connecting the power cable, refer to "Start Guide".

● The access LED does not light up.

The server may be damaged. Contact an office listed in the "Contact Information" of the "Start Guide".
Before contacting an office listed in the "Contact Information" of the "Start Guide", refer to "9.9.2 Contacting Maintenance Support" (→pg.286).

● An error message is displayed.

Refer to "9.2.2 Error Messages" (→pg.255).

● When an expansion card is added, other expansion cards or onboard devices are not recognized.

Reinstall the drivers for the expansion cards or onboard devices that are not recognized.

● **A temperature warning is output to the hardware event log and OS event log, or ServerView issues a notification of a temperature warning such as by a popup message.**

The above log is output or the above notification is issued by ServerView when the ambient temperature is within 30 to 35 °C, which is near the upper limit of the temperature boundaries (10 to 35 °C). This is to notify the administrator before the ambient temperature actually exceeds the range of the temperature boundaries.

Although continued use within the temperature boundaries poses no problems within itself, reconsider the surrounding environment conditions if this log is output or if ServerView issues this notification.

■ Display

● **The display does not power on.**

Check to see whether the power cable of the display is properly connected to the outlet. For details, refer to "Start Guide" or the manual of the display.

● **Nothing is displayed on the screen.**

- Check to see whether the display cable is connected properly.
  If it is not connected, turn the server off and then connect the cable.
  For the connection location, refer to "Start Guide".
- Check that the brightness volume and contrast volume of the display are adjusted correctly. If they need to be adjusted, perform the necessary adjustments.
  For details, refer to the manual of the display.
- There may be an error in the system area of the memory. Contact an office listed in the "Contact Information" of the "Start Guide".
- The server or an optional device may have a problem.
  Contact an office listed in the "Contact Information" of the "Start Guide".

● **Typing the keyboard does not display any characters, or the mouse cursor does not move.**

Check to see whether the keyboard and mouse are connected properly. If they are not connected, turn the server off and then connect the cables to the server. For details, refer to "Start Guide".

● **The screen shakes.**

If a device that produces a strong magnetic field such as a television or speaker is near the display, place them further away from the display.

The display may also shake if a nearby cell-phone receives a call. Do not use a cell-phone near the display.

● **The screen display is distorted.**

The screen display may be distorted during 3D program execution in Windows or the 3D program may terminate abnormally. If this occurs, set Color quality in screen properties to anything other than True Color (32 bits).

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■ Floppy Disk Drive

● Cannot read or write to the floppy disk.

The head may be dirty. Clean the drive using a cleaning disk.
For cleaning methods, refer to "9.1.2 Cleaning" (→pg.248).

● Cannot write to the floppy disk.

The write protection of the floppy disk may be applied. Flip the switch on the disk to allow writing.

■ CD-ROM Drive Unit

● Cannot read data.

- Check to see whether the CD-ROM is inserted properly.
  If it is not inserted, correctly insert the CD-ROM so that the label is facing up.
- Check to see whether the CD-ROM is not dirty.
  If it is dirty, wipe it with a soft, dry cloth.
- Check to see whether the CD-ROM is not scratched or bent.
  If scratched or damaged, replace the CD-ROM.

● The unit does not operate properly.

- The CD-ROM drive unit may not be recognized at the next startup after installation of fiber channel card in a Windows Server 2003 server. Perform the steps in "● Fibre Channel Controller" (→pg.182) in "7.5.2 Installable Expansion Cards and Notes", then it will be recognized.
- Check to see whether the internal cable is connected properly.
  If it is not connected, correctly connect the internal cable. For the connection location, refer to "7.10 Connection of Optional Devices" (→pg.201).

■ SCSI Device (Internal/External)

● The unit does not operate properly.

- Check to see whether the internal cable is connected properly.
  If it is not connected, correctly connect the internal cable.
- Check to see whether the jumper pins are set properly.
  If they are not set, correctly set the jumper pins. For settings, refer to "8.1 Jumper Pin Settings" (→pg.206).
- Check to see whether the SCSI IDs and terminator are set properly.
  If they are not set, correctly set the SCSI ID and terminator.

9.2.2 Error Messages

This section explains the error messages on this server.

■ POST Error Messages

When an error occurs during Power On Self Test (POST: device check performed during the server startup process), take the corresponding corrective actions described in the table below.

table: List of POST Error Messages

Message	Description
Failure Fixed Disk	Check the [Primary Master] settings on the "8.2.2 Main Menu" (→pg.211) of the BIOS Setup Utility. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Stuck Key Keyboard error	Remove objects, if any, that are pressing against any keys on the keyboard. Check to see whether the keyboard is connected properly. If the message still appears even though the server has been restarted, replace the keyboard. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Keyboard controller error	Remove objects, if any, that are pressing against any keys on the keyboard. Check to see whether the keyboard is connected properly. If the message still appears, replace the keyboard. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
System RAM Failed at offset: nnnnnnnnh Shadow Ram Failed at offset: nnnnnnnnh Extended RAM Failed at address line: nnnnh	Turn the server off and check that the memory modules are installed properly. If the message appears after the server is turned on again, check the system event log and replace the memory modules. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Memory type mixing detected.	The installation configuration of the memory is wrong. Verify that the same type of memory is installed to the slots of the same bank. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Memory decreased in Size	The memory is abnormal. Refer to the system event log and replace the abnormal DIMM. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". →"7.4 Installing Memory Modules" (pg.174)
Memory Redundancy Feature could not configure the Mirror DIMMs	This message appears when the user attempts to enable the memory mirroring function while the capacity differs between the paired memory modules or memory modules are not installed in a pair. Check the capacity of all installed memory modules. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". →"7.4 Installing Memory Modules" (pg.174)

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<div align="center">table: List of POST Error Messages</div>

Message	Description
Memory Redundancy Feature could not configure the Spare DIMMs	This message appears when the user attempts to enable the hot spare memory function while the capacity differs between the paired memory modules or memory modules are not installed in a pair. Check the capacity of all installed memory modules. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". →"7.4 Installing Memory Modules" (pg.174)
Non Fujitsu Siemens Memory Module detected - Warranty restricted!	The memory is abnormal. Check to see that the jumper pin settings or BIOS Setup Utility settings are correct. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". → "Chapter 8 Hardware Configuration/Utilities" (→pg.205)
Application CPU timeout error	Power off the server and turn it back on. If the message still appears, check the error log and replace the CPU. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". →"7.3 Installing a CPU" (pg.169)
System battery is dead - Replace and run SETUP	The battery is abnormal. Contact an office listed in the "Contact Information" of the "Start Guide".
System CMOS checksum bad - Default configuration used	Correct the changed settings with the BIOS Setup Utility or restore the settings at the time of purchase. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
System timer error	Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Real time clock error Check date and time settings	Check the date and time settings on the "8.2.2 Main Menu" (→pg.211) of the BIOS Setup Utility. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
CPU had been changed - Run SETUP	Check that the correct CPUs are installed. If the same message appears again, change [Reset Configuration Data] on the "8.2.5 Advanced Menu" (→pg.215) to [Yes] in the BIOS Setup Utility. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
CPU mismatch detected	Check that the correct CPUs are installed. If so, update the BIOS. If the same message appears again, change [Reset Configuration Data] on the "8.2.5 Advanced Menu" (→pg.215) to [Yes] in the BIOS Setup Utility. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Baseboard Management Controller Error	Turn the server off and unplug the power cables from the server. Turn the server back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Diskette drive A error Incorrect Drive A type - run SETUP	Check the settings on the "8.2.2 Main Menu" (→pg.211) of the BIOS Setup Utility. Check to see whether the floppy disk drive cable is connected properly. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
CPU runtime error(IERR#) detected	Check the system event logs. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".

table: List of POST Error Messages

Message	Description
Memory configuration has changed - Run SETUP	If this error occurs after addition of memory modules, change [Reset Configuration Data] on the "8.2.5 Advanced Menu" (→pg.215) to [Yes] in the BIOS Setup Utility. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
No usable system memory.	The memory is abnormal. Refer to the system event log and replace the abnormal DIMM. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide". →"7.4 Installing Memory Modules" (pg.174)
Memory module failed! This module is no longer available for the operating system.	Turn the server off and check that the memory modules are installed properly. If the message appears after the server is turned on again, check the system event log and replace the memory modules. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
No usable CPU	The CPU is abnormal. Contact an office listed in the "Contact Information" of the "Start Guide".
Patch for installed CPU not loaded. Please run the bios flash update diskette.	Check that the correct CPUs are installed. If so, update the BIOS. If the same message appears again, change [Reset Configuration Data] on the "8.2.5 Advanced Menu" (→pg.215) to [Yes] in the BIOS Setup Utility. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
CPU disable! CPU is no longer available for the operating system.	The CPU is abnormal. Contact an office listed in the "Contact Information" of the "Start Guide".
Invalid System Configuration Data	Change [Reset Configuration Data] on "8.2.5 Advanced Menu" (→pg.215) to [Yes] in the BIOS Setup Utility. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Resource Conflict	System resources (IRQs, DMA channels, or I/O port addresses) conflict. Start up the BIOS Setup Utility again and check the system resource settings. →"8.2 BIOS Setup Utility" (pg.208) If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
IRQ not configured	Check the settings on the BIOS Setup Utility. If the message still appears, replace the expansion card. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Expansion ROM not initialized	On the screen, check the expansion card or device being initialized. Replace the card. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Allocation error static node #	An onboard device or expansion card is abnormal. Replace the device or expansion card. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Baseboard Management Controller has detected an error	Check the system event log and replace the abnormal option.
A temperature has exceeded the warning threshold	Temperature is abnormal. Check and improve the environment. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
A temperature has exceeded the critical threshold	

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table: List of POST Error Messages

Message	Description
CPU fan speed has exceeded the warning threshold	A CPU fan is abnormal. Check for objects hindering CPU fan rotation. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
CPU fan speed has exceeded the critical threshold	
System fan speed has exceeded the warning threshold	A system fan is abnormal. Check for objects hindering system fan rotation. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
System fan speed has exceeded the critical threshold	
Power supply fan speed has exceeded the warning threshold	A power supply unit fan is abnormal. Check for objects hindering power supply unit fan rotation. If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Power supply fan speed has exceeded the critical threshold	
System board voltage has exceeded the critical threshold	Turn the server off and unplug the power cables from the server. Turn the server back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
System Event Log utilization has exceeded the warning threshold. Please save the System Event Log to a different media and clear it afterwards.	There is no space for system event logs. Store or delete logs as necessary. →"9.3 System Event Log" (pg.267)
Warning!: The array is degraded. Press [Ctrl] [A] to continue after insert Floppy Disk.Warning!: The array is degraded. Press [Ctrl] [A] to continue after insert Floppy Disk.	hard disk failure is detected. →"9.10.1 Hard disk failure is detected" (pg.287)"

■ Server Management Tools Error Messages

Error messages may appear while executing Server Management Tools. Perform the corresponding resolution listed in the table. If messages other than the following are displayed, contact an office listed in the "Contact Information" of the "Start Guide".

table: List of Server Management Tools Error Messages

Message	Description
Write protect error writing drive A. Abort, Retry, Fail?	The inserted floppy disk is write-protected. Disable the write-protect, and then press the [R] key.
Not ready writing drive A. Abort, Retry, Fail?	The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk ("Server Management Tools" disk), and then press the [R] key.
ERROR:Fail to create data file. ERROR:Fail to write 1st CMOS data into data file. nn ERROR:Fail to write 2nd CMOS data into data file. nn ERROR:Fail to write ESCD data into the data file. nn ERROR:Fail to write SEEPROM data into the data file. nn	The following are possible causes. Check the floppy disk status again. • The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk, and then retry. • The floppy disk is write-protected. Disable the write-protect and retry. • The floppy disk contains abnormal contents. Create the "Server Management Tools" disk again. If this occurred while recovering BIOS information, configure the information using the BIOS Setup Utility. Then store the BIOS information.
ERROR:Fail to open data file.	The file for recovering the BIOS information does not exist on this floppy disk. Insert the floppy disk on which the BIOS information was stored, and then retry.
ERROR:Fail to write 1st CMOS data into system. nn ERROR:Fail to write 2nd CMOS data into system file. nn ERROR:Fail to write ESCD data into system file. nn ERROR:Fail to write SEEPROM data into system. nn	The following are possible causes. Check the floppy disk status again. • The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk, and then retry. • A different model or an unsupported version of BIOS information. Insert the proper floppy disk, and then retry. • The floppy disk contains abnormal contents. Create the "Server Management Tools" disk again. If this occurred while recovering BIOS information, configure the information using the BIOS Setup Utility. Then store the BIOS information.
Other messages	Contact an office listed in the "Contact Information" of the "Start Guide".

9.2.3 Software Troubleshooting

This section explains software related troubleshooting. For troubles during OS installation or system operation, refer to the following contents.

■ Trouble at a ServerStart Startup

● After a boot from the ServerStart CD-ROM, nothing is displayed on the screen.

This problem may occur if the hard disk drive still contains previous information. In that case, this problem will occur when the Windows Server 2003 Installation CD-ROM is inserted.
To eliminate this problem, physically format the hard disk drive to delete the previous information and start up ServerStart. For physical formatting, refer to "8.3.8 Formatting hard disks physically" (→pg.244).

■ Trouble during OS Installation

● Automatic logon is not performed during Windows 2000 setup.

During OS installation, ServerStart installs applications and hardware utilities supplied with the OS. Installation and subsequent restart and logon are performed automatically as necessary. In rare cases, however, automatic logon is not performed and the logon window appears. In this widow, use the user name and password you have set before starting installation. After logon, the setup procedures are continued.

● Automatic installation stopped at an entry screen during Active Directory configuration.

If automatic installation has stopped during Active Directory configuration, check the error message first. Automatic installation can stop when the password is required, such as when registration in DNS fails. Check the environment and continue the installation manually. If the problem is not solved, click [Cancel] and after the OS installation, manually configure Active Directory.
If you have continued the Active Directory installation wizard manually, the following message appears when the installation wizard closes.

```
"You must restart Windows to make the settings in the Active Directory
installation wizard effective."
```

When this message appears, click [Restart] to continue the installation.

■ Error Window Appears after Installation or Uninstallation of ServerView or RAID Management Tool (Global Array Manager) on Windows Server 2003

Systems with Windows Server 2003 Service Pack 1 may display the following popup message at the next startup after installation or uninstallation of ServerView or RAID Management Tool. This is not a problem. Click [Close message] to close the message.

```
Windows has terminated the following program to prevent damage to your
computer.
Name: SNMP Service
```

■ Error Messages during Installation

The following error messages may appear during installation using ServerStart. Check the corrective action against the relevant error.

● "WzDiskAdmin: System Error! ---------------, Last Error: The device is not ready." appears.

External devices (e.g., hard disk cabinet) may be connected. Disconnect the optional SCSI devices and perform installation again. Connect the optional devices after the installation completes.

● "WzDiskAdmin: Partition detected! Please delete all partition before starting Configuration" appears.

Run the guide or preconfiguration mode again. Check [Delete all partitions on the displayed disk] in the disk wizard.

● "WzRaid: RAID arrays detected! Please delete all RAID arrays before starting Configuration" appears.

Use the ServerStart floppy disk you have created. Check [Delete existing RAID array] or select [Use existing array] in the RAID wizard.

● "Operating System not found" appears when the system restarts after file copy from the CD-ROM.

The possible causes are as follows:
- The RAID card comes earlier than the onboard SCSI array card in order of device startup.
- The Active flag is specified.

● "Missing Operating System" appears during installation.

The installation partition size may be too large. Specify the installation partition size correctly.
For details on the installation partition size, refer to "2.3.1 Installation Partition Size" (→pg.45).

● "Error 1920. Service (PXE Services) failed to start" appears during preconfigured installation.

The system installed with the preconfigured settings (PXE server) may not be connected to the network. Check the LAN cable connection and click [Rerun].

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■ Error Window Appears after LAN Driver Installation (on Windows Server 2003)

The following window may appear when the installation of the LAN driver to the [Ethernet controller] under [Other devices] starts.
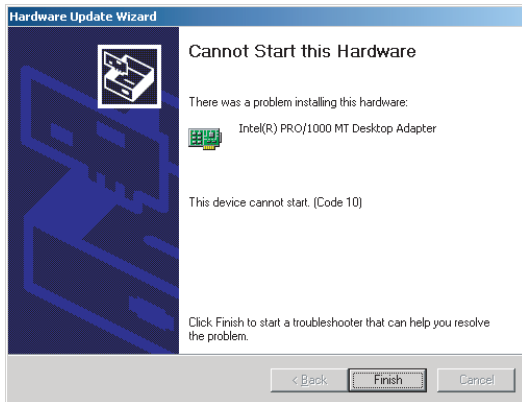
This is because the LAN driver for the network adapter recognized immediately after the OS installation is not updated.

Clicking [Finish] in this window displays the [Help and Support Center] window. Click [X] to close this window.

The "!" mark is displayed at the LAN device name in Device Manager. Device names are displayed properly when all LAN drivers are installed and the system is restarted.

For details on LAN driver installation, refer to "4.3.1 Installing the LAN Driver (Windows Server 2003)" (→pg.121).

■ Application Error Occurs in the OS Installation Wizard in ServerStart Preconfiguration Mode

Executing the preconfiguration mode on a client computer installed with Microsoft Visual Studio 6.0 Service Pack 5 will cause an application error.

Install ServerStart in a client computer in a different environment or use the guided mode on this server. This problem does not occur in Windows 2000 Server since it is corrected by Windows 2000 Service Pack 4.

■ LAN Operation Fails or Error Message Appears during LAN Driver Installation

A conflict may have occurred between system resources including the LAN and other expansion cards. Delete all LAN drivers and check that conflicts between system resources do not exist. Then, restart the system and install the LAN drivers. For the LAN driver installation procedure, refer to "4.3 Installing the LAN Driver" (→pg.121).

■ Event Log Errors after Installation

After Windows installation, the following events may be displayed in Event Viewer. Check and perform the corrective action against the relevant event.

table: Error Events at Installation

ID	Description	Cause and corrective action
9	The device nnnn, did not respond during the timeout time.	This message may appear when an expansion card such as a RAID card or a SCSI card is installed. However, this is not a problem.
15	The device, nnnn, is not ready for access yet.	
62	This computer is a domain PDC at the root of forest. Use the net command "net time /setsntp:<server name>" to configure it for synchronization from an external time source.	Cause: An NTP was selected as a component. Corrective action: ServerStart cannot configure the NTP server automatically due to the absence of items for specifying it. After OS installation, perform the following procedure to specify the time server. 1. Start SNTP server operation on another machine. Assume that the SNTP server address is <172.22.78.246>. 2. Enter the following at a command prompt. net time /setsntp:172.22.78.246 w32tm -s 172.22.78.246
1000	The user or computer name cannot be identified. The return value is "1722".	Cause: The primary DNS server address may be invalid or the server cannot be connected. Corrective action: Perform the following procedures to correct the DNS address in Internet protocol (TCP/IP) properties. 1. Right-click [My Network] and select [Properties]. 2. Right-click [Local Area Connection] and click [Properties]. 3. Click [Internet Protocol (TCP/IP)] and click [Properties]. 4. Enter the correct DNS address in the [Primary DNS server] box.

■ Cannot Collect the Memory Dump

If the memory dump file cannot be created, perform the following procedures.

● Correct the settings

If the memory dump cannot be collected, check the settings of the paging file and memory dump file.
For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.128).

● Collect memory dump to other than the system drive

If the memory dump was set to be collected to the system drive (C:\), change the settings so that the memory dump can be saved to a drive other than the system drive.
For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.128).
If only the system drive exists, or if there is no free space in any of the drives, perform one of the following.

- Adding a hard disk
- Replacing with a larger hard disk

● **Reduce the installed memory to collect the memory dump**

To obtain memory dump regardless of the installed memory size, reduce the installed memory to an obtainable size.
Check the memory dump settings when changing the installed memory size.
For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.128).

● **Change the write type of the debugging information (Windows Server 2003/Windows 2000 Server)**

If the memory dump cannot be collected, select a write type of debugging information within the range of free space of the volume size.
If the above does not provide a solution, try increasing the size of the hard disk or adding an additional hard disk.

■ When the Server is Turned on, a Message is Recorded in the ServerView Event Log.

In rare cases, the following message may be recorded in the ServerView event log when the server installed with a remote service board is turned on.

```
PCI BIST timeout, rebooting Server
```

The server operates normally if this message is recorded.
However, if messages are recorded continuously, contact an office listed in the "Contact Information" of the "Start Guide".

■ Restore the System

In the unfortunate event where the system file, system configuration, or environment changes during startup are corrupted, use the repair information stored on the recovery disk created at the installation to restore the system.
For restoration procedures, refer to the following.
- "9.6.1 For Windows Server 2003" (→pg.278)
- "9.6.2 For Windows 2000 Server" (→pg.279)

■ Fails in Remote Installation

If remote installation fails, check the following.

● Checking Services

Check that the DHCP, PXE Service, and TFTP Service are running.
For checking procedures, refer to "3.4 Remote Installation" (→pg.85).

● Setting TFTP

To access TFTP Service, add a Guest account to the TFTP folder and set the full control rights.
For setting procedures, refer to "3.4 Remote Installation" (→pg.85).

● Checking Network Function Settings

The server must support the network function (PXE).
For the setting procedure, refer to "Performing Remote Installation" in "2.1.2 Hardware Settings" (→pg.42).

● Checking the MAC Address

Check that the current MAC address is the correct MAC address of the server.
For the MAC address checking procedure, refer to "Performing Remote Installation" in "2.1.2 Hardware Settings" (→pg.42).

● Checking LAN Cable Connection

Check that the LAN cable is connected to the LAN card corresponding to the specified MAC address and that the LAN card is connected to the network.

■ SNMP Service Startup Fails

Regardless of whether the Simple Network Management Protocol (SNMP) is installed, if the SNMP service is not started, perform the following procedure to start the SNMP service.

● For Windows Server 2003

1 Click [Start] → [Administrative Tools] → [Computer Management].

2 Select [Services] from [Services and Applications].

3 From the details, select [SNMP Service].

4 Select [Start] from the [Action] menu.

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● **For Windows 2000 Server**

1 Right-click the [My Computer] icon on the desktop and click [Manage] from the displayed menu.

2 Select [Services] from the [Services and Applications] menu.

3 From the details, select [SNMP Service].

4 Select [Start] from the [Action] menu.

POINT

▶ To have the service automatically started each time the OS starts, double-click [SNMP Service] from the details, and select [Automatic] for the [Startup type] setting on the displayed window.

■ Time Display in Linux OS Environment

● Difference in Time between the OS and the Hardware Clock

During OS operation in a Linux environment, the software clock on the OS, rather than the hardware clock in the server, is used to display the time.
This may cause a difference in time between the OS and the hardware clock.
When you want to see the accurate time on the OS, it is recommended to use the NTP service to periodically correct the time displayed on the OS.

● Changing the Time Settings for the OS and Hardware Clock

In a Linux environment, the time displayed on the OS (the software clock value on the OS) is written to the hardware clock in the server when the OS is shut down.

• Procedure for prohibiting the time on the OS from being written to the hardware clock
When you do not want the time on the OS to be written to the hardware clock at an OS shutdown, comment the following line out in /etc/rc0.d/S01halt.

runcmd $"Syncing hardware clock to system time" /sbin/hwclock $CLOCKFLAGS
↓
#runcmd $"Syncing hardware clock to system time" /sbin/hwclock $CLOCKFLAGS

• Procedure for reflecting the hardware clock value to the time on the OS
To reflect the hardware clock value to the software clock value on the OS, run the following command.

>hwclock --hctosys

9.3 System Event Log

To operate system event log, use Server Management Tools.

9.3.1 How to Use Server Management Tools

This section explains how to use Server Management Tools.
Server Management Tools can operate event logs stored in the Baseboard Management Controller (BMC: a micro-controller on the baseboard that manages temperature and voltage sensors).
Server Management Tools has the following functions.

- Viewing the System Event Log
- Saving the system event log
- Deleting the system event log

When an error log occurs, save the log using Server Management Tools and contact your sales representative or an office listed in the "Contact Information" of the "Start Guide".

IMPORTANT

▶ The Server Management Tools disk supplied with this server is exclusively for this server. Do not use those tools on other systems. If it is used, the system can be damaged.

▶ Run Server Management Tools when the server is operating. Refer to "■ Starting Server Management Tools" (→pg.267). Do not run this tool on the server started from the hard disk drive or other floppy disks. Otherwise, the system may be corrupted.

▶ Do not eject the floppy disk when the floppy disk access LED is on. Doing so may destroy the data on the floppy disk.

■ Starting Server Management Tools

IMPORTANT

▶ Before starting the system from the "Server Management Tools" disk, check to see that the "OS Boot Monitoring" function of ServerView is disabled (default setting).
If the system is started with this function enabled, the server may automatically turn off or restart improperly.
If the "OS Boot Monitoring" function is needed, it should be reset to enabled before resuming normal server operation. For details of ServerView, refer to "ServerView User's Guide".

1 Insert the "Server Management Tools" disk supplied with this server into the floppy disk drive.

The system will boot from the floppy disk and the DOS prompt is displayed.

2 Enter the following command and press the [Enter] key.

A:\SMTOOL\>IPMIVIEW.EXE

The menu window of Server Management Tools appears.

```
FUJITSU
 SIEMENS          IPMI-Tool - Vx.xx
  COMPUTERS

     General Information
     Temperature Information
     Fan Information
     Voltage Information
     System Event Log (SEL)
     FRU Information (ID Proms)
     User Management
     LAN Configuration
     Server Management Control Settings




 <↑ ↓> Select    <ENTER> Start      <ESC> Exit
```

IMPORTANT
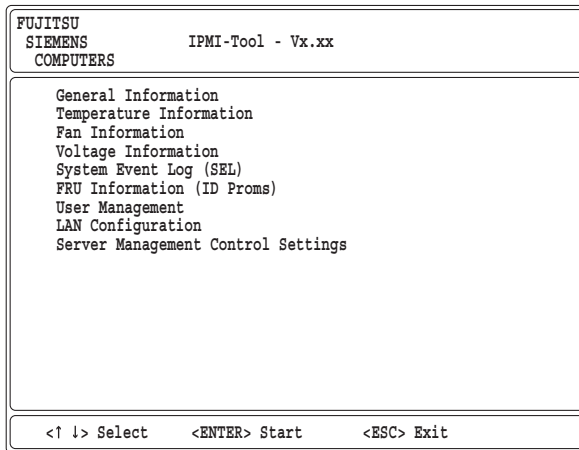
▸ Only the following functions are supported by Server Management Tools.
  • System Event Log (SEL)
  • User Management
  • LAN Configuration

■ Exiting Server Management Tools

1 Press the [Esc] key once in the menu window of Server Management Tools.

The power can be turned off when the DOS prompt is displayed.

9.3.2　Viewing the System Event Log

Viewing the system event log is performed from System Event Log (SEL) of Server Management Tools.

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

```
┌────────────────────────────────────────────────────────────────┐
│ FUJITSU                                                          │
│  SIEMENS                      SYSTEM EVENT LOG (SEL)             │
│   COMPUTERS                                                      │
├────────────────────────────────────────────────────────────────┤
│004 MMM-DD-YYYY HH:MM:SS [*****] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX ▯│
│003 MMM-DD-YYYY HH:MM:SS [*****] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX │
│002 MMM-DD-YYYY HH:MM:SS [*****] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX │
│001 MMM-DD-YYYY HH:MM:SS [*****] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX │
│000 MMM-DD-YYYY HH:MM:SS [*****] XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                               ▯ │
│◁                                                              ▷│
├────────────────────────────────────────────────────────────────┤
│<↕↔,PgUp/Dn,(Ctrl-)Home/End> Move  <F2> SaveToFile  <F3> Clear  <ESC> Exit│
└────────────────────────────────────────────────────────────────┘
```

3 Use the following key operations to scroll the window and check the contents.

[↑], [↓], [←], [→], [Page Up], [Page Down], [Ctrl] + [Home], [Ctrl] + [End]

4 To exit the system event log, press the [Esc] key.

9.3.3 Saving/Deleting the System Event Log

When the system event log is full, the oldest log is overwritten with the newest log. Periodically check the system event log and save/delete as necessary.

■ Saving the System Event Log

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

3 Press the [F2] key.

4 Enter the name of the file to save the system event log to, and press the [Enter] key.

The system event log is saved to the floppy disk under the specified file name.

■ Deleting the System Event Log

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

3 Press the [F3] key.

A confirm delete window appears.

4 Press the [Enter] key.

This deletes the system event log.

◌POINT

▶ Selecting [System Event Log (SEL)] right after deleting the system event log will result in an error. Allow approximately 10 seconds to select it normally.

9.4 Security

Security features are provided in order to protect the server hardware and software from theft. Additional security functions, which prevent unauthorized use, provided by the BIOS Setup Utility are also available to help maintain a highly reliable data security system.

9.4.1 Hardware Security

This section explains the hardware security features.
 Lock the rack door to protect the hardware in the rack from theft or tampering.
To close the rack door, shut the door and return the rack handle, and turn the rack key.
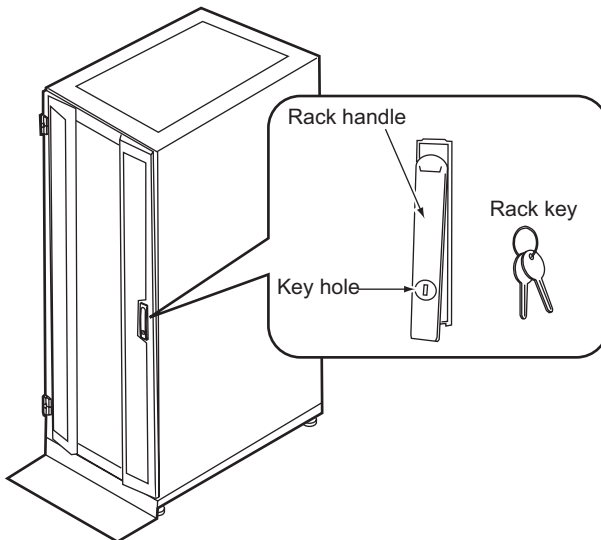
POINT

▶ Do not lose the rack key. If the key is lost, contact an office listed in the "Contact Information" of the "Start Guide".

▶ For instructions on opening the rack door, refer to "1.4.1 Opening the Rack Door" (→pg.28).

▶ The above explanation is based on the 40U standard rack. For details on other rack systems, refer to their respective manuals.

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9.4.2 Security against Unauthorized Use

A password can be set to prevent unauthorized use of the server.

When a password is set, the server is accessible only to the users who know the password.

The password is set in the BIOS Setup Utility. For details on the BIOS Setup Utility, refer to "8.2.10 Security Menu" (→pg.222).

■ Password Types

The following two types of password can be set in this server.

The password types define the privileges of server operations.

● Setup Password (administrator password)

This is the password that allows specific persons to access the BIOS setup. Unless the set password is entered, the BIOS Setup Utility and the OS cannot be started up.

● System Password (user password)

This is the password that allows specific persons to use the server. Unless the set password is entered, part of the BIOS Setup Utility and the OS cannot be started up.

■ Setting a Password

1   Start the BIOS Setup Utility.

→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.208)

2   Use the [←] [→] keys to select [Security] from the [Main] menu.

The [Security] menu appears.

3   Use the [↑] [↓] keys to move the cursor to [Set System Password] or [Set Setup Password], and press the [Enter] key.

The password entry window appears.

```
 Set Setup(System) Password

    Enter New Password    [    ]
  Confirm New Password    [    ]
```

4   Enter the password in the [Enter New Password] field.

Alphanumeric characters can be used. Blocks are displayed instead of the letters entered. To cancel the password setting, press the [Esc] key.

5   In the [Confirm New Password] field, enter the password you have entered in Step 4 and press the [Enter] key.

[System Password] or [Setup Password] on the [Security] menu shows [Installed].

POINT

▶ When only the user or administrator password is set, the same setting items are accessible to both users and administrators.

▶ When both passwords are set, users can set dates and user passwords only.

■ Changing/Deleting a Password

```
Set Setup(System) Password

Enter Current Password   [      ]
    Enter New Password   [      ]
  Confirm New Password   [      ]
```

1 Enter the current password in the [Enter Current Password] field in the password entry window.

2 Enter a new password in the [Enter New Password] field.
To delete the password, enter nothing and perform Step 4.

3 In the [Confirm New Password] field, enter the password you have entered in Step 2.
To delete the password, enter nothing and perform Step 4.

4 Press the [Enter] key.
When you delete the password, [System Password] or [Setup Password] on the [Security] menu shows [Not installed].

POINT

▶ The system shuts down after three invalid password entries. If this happens, power off the server, turn it back on, and then enter the correct password.

▶ If you forget your password and cannot start the server, change the jumper pin setting on the baseboard to clear the CMOS storing the password. Change the jumper pin setting back, and return the BIOS Setup Utility to the original setting. Then, set the password using this utility.
→"8.1 Jumper Pin Settings" (pg.206)

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9.4.3 Security When Disposing the Server

■ Notes regarding the Deletion of Data from the Hard Disk When Disposing or Transferring the Server

When disposing or transferring a server that has been used, the data in the hard disk may be read and used unscrupulously. To prevent confidential or important data from leaking out, the data on the hard disk must be wiped before disposing of or transferring the server.

However, wiping the hard disk is not an easy task. Simply initializing (formatting) the hard disk or deleting the files may give the pretense that the data no longer exists, but in reality the data is simply no longer accessible to the OS, and it is still accessible to malicious individuals that can restore the data. Therefore, if confidential or important data is saved to the hard disk, in addition to the operations mentioned above, it is recommended to use third-party tools or services to wipe the data completely from the disk to prevent its restoration.

When disposing of or transferring the server, it is the customers responsibility to wipe data contained in the hard disk in order to prevent such important data from leaking.

Also, if software license agreements prohibit unauthorized distribution of software (OS or application software), transferring the server without removing the software may violate the license agreements. These issues must be taken into consideration.

9.5 Backup

This server utilizes high reliability components and hard disks, however, as a precautionary measure, it is recommended that periodic backups be taken of the data.

9.5.1 Importance of Backups

If the data on the server is backed up, it can be restored from the backup data in the event of data corruption in hard disk units due to hardware failures or operational errors. If backups are not made, restoration is impossible and your important data will be lost permanently. For anxiety-free system operation, be sure to perform periodic backups of the system.

9.5.2 Backup Devices, Software and Their Operations

A backup of data stored on the server is required for data restoration in the event of server trouble resulting in a system failure or accidental data loss due to operational errors. If the data on the server is backed up, it can be restored from the backup in the event of hardware failures or data corruption in hard disks due to operational errors. If backups are not made, restoration is impossible and data will be permanently lost. To prepare for unexpected problems, be sure to perform periodic backups of the system.

- Backup device (e.g., DDS4 drive)
- Backup software
  (Standard backup software supplied with the OS, e.g., ARCserve, Changer Option)
- Backup operations (schedules)
  Use our genuine backup devices and software. Observe the backup medium (tape) storage conditions.

■ Notes on Operating Backups

Notes on operating backups are as follows.
For details, refer to the device manuals.

● Head Cleaning

Airborne dust and dust from the magnetic media can collect on the head of the magnetic tape device. To remove this dust, head cleaning must be implemented. Implement head cleaning when the device displays a cleaning request. Particularly DDS devices require periodic head cleaning, otherwise dust can cling to the magnetic head, creating a situation that cannot be cleaned with standard head cleaning methods, and eventually render the device useless.
Also note that the cleaning media has a limit to how many times it can be used. Manage its lifespan. Using cleaning media that exceeded its lifespan will have no cleaning effect. Note these points especially when performing automatic backups with library devices.

● Managing Media Lifespans

Media is a consumable product that must be replaced regularly.
Continued use of media exceeding its lifespan can have negative effects on the device (e.g. increase the speed of dust accumulation).
The lifespan of media varies depending on the environment and operation condition of the device, the type of backup software used, and other operation conditions, however, it is recommended that they be replaced sooner than later.
To manage the lifespan, write the use start date on the media.

● Rotating Media

Rotate between several media for backups. When using a single media cartridge repeatedly, backup data can be temporarily lost in the event the backup fails. Or if the hard disk were to fail during a backup, the data will become unrecoverable.

● Avoid Leaving Media in Devices

Because the magnetic recording surface of the device is exposed, media can easily affected by airborne dust when left inserted for a long period of time. Insert the media before using it, and remove the media after use, and restore it in its case.
Also note that some tape devices write management information to the tape when ejecting the media. If the power were to go out when the media is still in the device, this writing process will not be performed and the media may become corrupted.
To avoid this, remove the media from the device when turning off the server/device.

● Verifying Data after a Backup

Some backup software products provide data verification functions after a backup is completed. Such functions will read and verify the data written to the media after a backup is completed. This will increase the usage of the media, thus reducing the number of times it can be used for backups.
Depending on the hardware being used, some devices perform "read after write" operations on data; note the points of this section as necessary.

● **Ejecting Media after a Backup**

Some backup software products provide functions for ejecting media after a backup is completed. Such functions will rewind the tape after a backup is completed and then eject the media from the drive. Be sure to execute this function for autoloader/library devices. Depending on the structure of some servers, this function may cause the media to eject from an internal device of the server and hit the chassis door. If this is the case, open the door when ejecting, or do not eject the media.

● **Media Label Types and Positions**

When writing information such as the name on media, use the label that came with the media.
The area in which a label can be posted on the media of each device varies.
Failing to post labels in the designated area can damage the device.

● **Data Storage**

When storing data for long periods of time, store the media in a location least affected by temperature, humidity, and magnetic fields.

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9.6 Restoring the System

In the unfortunate event where the system file, system configuration, or environment changes during startup are corrupted, use the repair information stored on the recovery disk created at the installation to restore the system.

POINT

> ▶ Create a recovery disk when you have installed an OS or changed the system configuration. Refer to "5.2 Creating a Disk for System Recovery" (→pg.138).

9.6.1 For Windows Server 2003

● Items Required

- Windows Server 2003 CD-ROM
- Automated System Recovery (ASR) floppy disk (created beforehand)
- Backup media (created beforehand)
- Driver disk (for the onboard SCSI array controller)
  For drivers to be used and how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.110).
- Windows Server 2003 First Step Guide

  1 Follow "Windows Server 2003 First Step Guide" to start Windows Server 2003 setup.

  2 When a message prompting you to press the [F6] key appears immediately after the start of setup, press the [F6] key.

  3 When a message prompting you to press the [F2] key appears, press the [F2] key.
  A message prompting you to insert the ASR floppy disk appears.

  4 Insert the ASR floppy disk and follow the window instructions.

  5 The system restarts and a message appears. Press the [F6] key.

  6 Follow the window instructions to restore the system.

POINT

Notes on Automated System Recovery

> ▶ Automated System Recovery does not restore data files.

9.6.2 For Windows 2000 Server

● Items Required

- Windows 2000 Server CD-ROM
- Windows 2000 Server system recovery disk (created beforehand)
- Windows 2000 Server First Step Guide

1 Follow "Windows 2000 Server First Step Guide" to start Windows 2000 Server setup.

2 From the [Welcome to Setup] window of the Windows 2000 Server Setup program, press the [R] key to select restoration.

3 Follow the message on the setup window to restore the system.

⌕POINT

Notes on system restoration

- ▶ The system may return to the initial installation conditions depending on the restoration information used. In this case, the system must be configured after system restoration.
- ▶ Windows 2000 Server may have to be reinstalled if system files or system information are severely damaged. If this is the case, reinstall it. Refer to "9.7 Reinstalling the OS" (→pg.280).
- ▶ The message "The file ******.*** is not the original file copied when Windows 2000 was installed." appears during file restoration. Press the [Enter] or [A] key to restore the file.

9.7 Reinstalling the OS

This section explains the procedure for reinstalling the OS.

9.7.1 Checking before OS Reinstallation

■ Removing the Optional Devices

Remove the following optional devices before reinstallation. Install or connect them after OS installation.

- Optional SCSI devices (e.g., hard disk cabinet, or DAT unit) connected via a SCSI card
- Internal hard disk units that do not contain the OS installation folder
- USB devices

■ Deletion of Data from the Disc

Reinstallation deletes all disk contents. Save the necessary data and system configuration in a different location.

■ Other Notes

Notes on initial installation also apply.

9.7.2 Reinstallation Using ServerStart

When the previous installation was performed in guide or preconfiguration mode, the ServerStart floppy disk used in that installation can be used again. When the reinstallation is performed with the same configuration as that for the previous installation, you do not have to edit the configuration file on the ServerStart floppy disk. You do not have to configure setting on wizards. After ServerStart starts up, click [Start (OS) Installation] to perform installation.

9.8 Changing OS Settings

This section explains the procedure for changing OS settings.
When you have changed to enable Hyper-Threading using the BIOS setting after starting operation in a one CPU configuration or when you add a CPU, change the OS to the multi-processor kernel.
When you will reduce the number of CPUs from two to one or disable Hyper-Threading, change the OS to the uni-processor kernel.

POINT

▶ It is recommended that users of the Linux type or Linux array type refer to the Linux manual supplied with the server.

▶ Customers using the Linux distribution OS on a diskless type server are advised to refer to the Fujitsu PRIMERGY website (http://primergy.fujitsu.com).

▶ Hyper-Threading is enabled at the time of purchase. For functions and settings of Hyper-Threading, refer to "8.2.8 Advanced System Configuration Submenu" (→pg.219).

IMPORTANT

▶ Back up the data before changing settings.

▶ Several files must be copied when you change the OS to the multi-processor kernel.
Use the same files as those in the service pack currently applied.

9.8.1 For Windows Server 2003

After adding a CPU or changing the Hyper-Threading setting, starting up the OS changes OS settings. A pop-up message appears. Follow the window instructions.

9.8.2 For Windows 2000 Server

Change OS settings in the following procedure, then add a CPU or change the Hyper-Threading setting.

1 Startup Windows 2000 Server.

2 Start up Device Manager.
1. Click [Start] → [Settings] → [Control Panel].
2. Double-click the [System] icon.
3. Select the [Hardware] tab and click [Device Manager (D)...] in [Device Manager].
   Device Manager starts up.

3 Display computer properties.
1. Select [Devices (by type)] from the [View] menu.
2. Select [Computer] in the tree view and click [+] to expand it.
3. Double-click either of the following item.
   - [ACPI uni-processor] to change the OS to the multi-processor kernel
   - [ACPI multi-processor] to change the OS to the uni-processor kernel

4 Click the [Driver] tab and click [Update Driver (P)...].
The [Device Driver Upgrade Wizard] starts up.

5 Update drivers.
1. Click [Next] in the [Start Device Driver Upgrade Wizard] window.
   The [Install Hardware Device Driver] window appears.
2. In search method selection, select [Display known drivers for this device and select a driver from the list.] and click [Next].

   The [Select a Device Driver] window appears.
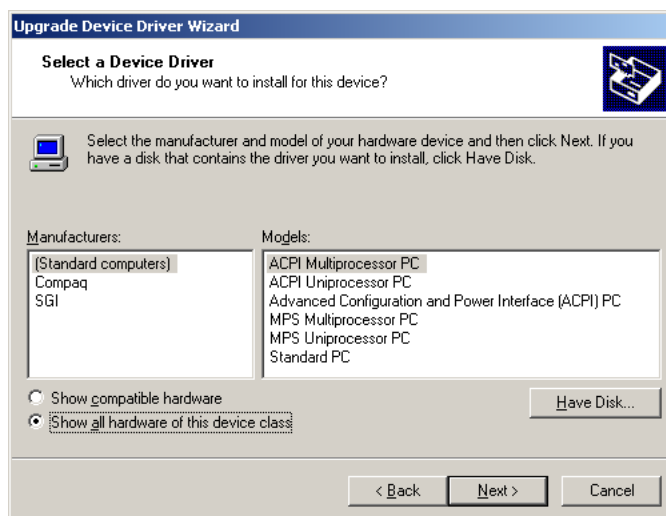
3. Select [Display all hardware in this device class]. From the [Manufacturers] list, select [(Standard computer)]. Select either of the following from [Models].
   - [ACPI multi-processor PC] to change the OS to the multi-processor kernel
   - [ACPI uni-processor PC] to change the OS to the uni-processor kernel

IMPORTANT

▶ If the wrong model is selected, the system does not operate properly. You must reinstall the OS in some cases. Take great care of changing the OS.

4. Click [Next].

   The [Start Device Driver Installation] window appears.
5. Click [Next].

   Driver update starts. The [Finish] window appears when it completes.
6. Click [Finish].

   The [ACPI Multi-processor PC Properties] window or [ACPI Uni-processor PC Properties] window appears.

6 Shut down and turn the server off.

1. Click [Close].

The [System Settings Change] window appears.
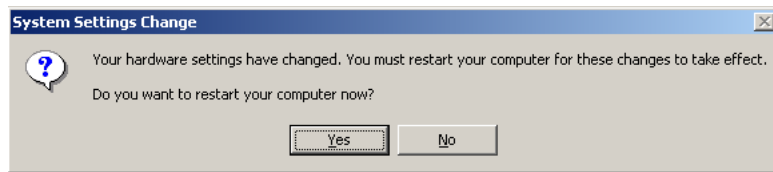
2. Click [Yes].

The computer shuts down and restarts automatically.

7 Add an optional CPU or change the Hyper-Threading setting in the BIOS Setup Utility.

→"7.3 Installing a CPU" (pg.169)

→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.208)

→"8.2.8 Advanced System Configuration Submenu" (pg.219)

8 Restart the system.

When the OS starts up, check that the item under [Computer] is changed in Device Manager of Control Panel.

9.9 Maintenance Service

This section explains the details of the maintenance service.

If the cause of the failure is uncertain or if the original condition cannot be restored, contact the seller or an office listed in the "Contact Information" of the "Start Guide".

9.9.1 Maintenance Service

■ Non-durable Components

Depending on the environment and usage of the customer, non-durable components of the server may need to be replaced during the maintenance support period.

Customers who have signed up to hardware maintenance contact will be provided with replacement parts free of charge and will have higher priority for replacement. Customers not signed up to hardware maintenance contact will be charged for operation cost (including the maintenance parts) separately.

▶ POINT

Replacing non-durable components

▶ To ensure stable operation of the server system, it is recommended that a maintenance service agreement be purchased.

▶ Lifetime of non-durable components
The lifetime of such components is calculated based on appropriate usage environments.
Although the guaranteed range for operation is set between 10 and 35°C, the lifetime is assumed at a constant average temperature of 25°C.

▶ Types of non-durable components

table: Non-durable Component List

Component	Description
RAID card battery	Regardless of the time the power was turned on and off, the lifetime is approximately three years.

9.9.2 Contacting Maintenance Support

For "Contact Information", refer to "Start Guide". Before contacting maintenance support, check the following.

● Item

- Model name and product ID of the server
  They are described on the label on the server. For the label location, refer to "Start Guide".
- Hardware configuration (Types and locations of internal options)
- Configuration information (BIOS Setup Utility, SCSI Setup Utility settings)
- OS
- LAN/WAN system configuration
- Phenomena (what happened when doing what, what was displayed, etc.)
- Date/time of occurrence
- Environmental settings of the server
- LED statuses

POINT

▶ Print and fill in the "Configuration Sheet" of the "Configuration Sheets" and the "Accident Sheet".

9.10 Maintenance & Notes

This section explains the details of the maintenance & Notes.

9.10.1 Hard disk failure is detected

IMPORTANT

▶ If hard disk failure is detected during POST, the RX200 S2 on-board SCSI array controller stops with the following message.

```
Warning!: The array is degraded. Press [Ctrl] [A] to continue after
insert Floppy Disk.
```

If the controller stops with this message, insert the floppy disk "OnBoard RAID Utility" into the floppy disk drive of the system, and press the [Ctrl] key and [A] key at once to start up the system from the floppy disk. The utility automatically starts up. The following message appears on the utility.

```
Background command progress status for controller 0...
IR Volume 1
  Current operation                        : None
  Volume ID                                : 0
  Volume status                            : Enabled
  Volume state                             : Degraded
  Physical disk I/Os                       : Not quiesced
curState: 1    prvState: 0

Previous Physical Disk States:
       ID0 : Failed  ID1 : Failed

Current Physical Disk States:
       ID0 : Online  ID1: Failed

Fatal ERROR happened. Please call support engineer
```

IMPORTANT

▶ As shown here, if the message "Fatal Error happened. Please call support engineer." appears, do not start up the system. Please contact the maintenance person and system administrator.

```
Background command progress status for controller 0...
IR Volume 1
  Current operation                        : None
  Volume ID                                : 0
  Volume status                            : Enabled
  Volume state                             : Degraded
  Physical disk I/Os                       : Not quiesced
curState: 1    prvState: 3

Previous Physical Disk States:
       ID0 : Online  ID1 : Failed

Current Physical Disk States:
       ID0 : Online  ID1: Failed

OK. You can boot system.
Please check HDD status after boot
```

If the message "OK. You can boot system. Please check HDD status after boot." appears, remove the defective hard disk following the procedures below.

1 Investigate the hard disk ID where "Failed" appears at both "Previous Physical Disk States" and "Current Physical Disk States" on the screen. This ID indicates a defective hard disk. In this case, ID1 is defective. Viewed from the front of the server, the left hard disk is ID0, and the right hard disk is ID1.

ID0   ID1
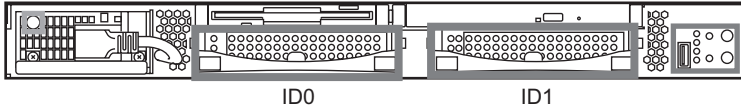
2 Touch a metal part of the server to discharge static electricity from your body.

3 Lift up the handle of the defective hard disk unit checked in Item 1, and pull it slightly to the front.

4 Wait for about 60 seconds (until the defective hard disk unit starts to rotate), then pull out the defective hard disk unit.

5 After ejecting "On Board RAID Utility" from the floppy disk drive, then press [Ctrl], [Alt], and [Delete] keys simultaneously to reboot the system.

After reboot, the following message appears again. Press [Ctrl] and [A] keys simultaneously to start up the OS.

```
Warning!: The array is degraded. Press [Ctrl] [A] to continue after
insert Floppy Disk.
```

IMPORTANT

▸ The logical drive enters the critical status, and one hard disk is defective. The logical drive is not redundant. Set a new hard disk into the hard disk bay where the defective hard disk was mounted as soon as possible, then start the rebuild processing. If one disk is missing, the rebuild processing stops with an error message.
For details on the rebuild processing, refer to "Onboard SCSI RAID User's Guide 5.1 Replacing a Hard Disk".

▸ If the second hard disk fails while the first hard disk remains defective without replacement and reboot, the array controller may start up the system from the first defective hard disk depending on the failure mode of the first hard disk. In that case, the system starts up with old data, and new data may be lost. To prevent this problem, confirm the hard disk state using On Board RAID Utility, and start up the OS.

9.10.2 Operation after Baseboard Replacement

If the baseboard is replaced due to an error when the on-board SCSI array controller function is used for this server, the logical drive of the array controller is initialized again after replacement. This is because the data integrity information showing whether data was written correctly in the past is stored in the baseboard. As the information is lost due to replacement, the initialization is automatically executed to ensure the data integrity. This does not mean hard disk failure.

For behavior of the initialization, see "Onboard SCSI RAID User's Guide 1.4 Rebuilding/Initializing a Logical Drive".

9.10.3 Rebuild Operation by Automatic Recovery of HDD

When the on-board SCSI array controller function is used for this server, if the retry count against recoverable hard disk error exceeds the threshold, automatic rebuild function runs to check the entire disk. While the automatic rebuild function is running, the hard disk failure lamp blinks, and the front maintenance lamp comes on due to the ServerView function.

A log "A manual rebuild has started on logical drive." remains in Log Information Viewer on GAM. During automatic rebuild, hard disks can be accessed, but the access performance is affected. The performance may be lowered up to 54%. After automatic rebuild is completed, the hard disk can be used in the redundant state. But, the hard disk should be replaced as soon as possible.

If the above symptom (lamp, message on GAM) occurs although hard disk is not replaced, please contact the maintenance person or system administrator.

* For automatic rebuild events, ServerView notification are not executed. However, if automatic rebuild fails, ServerView notification is done as hard disk failure.

9.10.4 Notes on Use of Domain Controller Function

In the case of disk array configuration with the on-board SCSI array controller in this server, if it is used as a domain controller for Windows Server 2003 x64 Editions, Windows Server 2003, or Windows 2000 Server, the following warning message may be logged in the OS event log during startup.

```
Type: Warning
Source: Disk
Description: The driver detects a valid writing cache of
\Device\Harddisk0\DR0. The data may be damaged.
```

For this server, the writing cache is always disabled, and never becomes enabled for the RAID logical drive configured with SCSI array controllers. However, this message indicates that the logical drive cache configuration is not correctly recognized. Even if this message is logged, the system operation is not affected, and data is not damaged.

Operation and Maintenance

9

9.10.5 Note on System Event Log during Power-ON

Immediately after power-on, the following message log may remain while other memory error logs do not remain in the system event log. Even if this system event log is logged, a memory error does not actually occur, and there is no operational problem. You can use the system continuously. The system event log can be checked using the ServerManagementTools disk. (Related page: "9.3 System Event Log" (→pg.267))

EventLoggingDisabled S=CorrectableMemoryErrorLoggingDisabled-Deasserted

This event log is the same as the following message on ServerView.

Correctable memory error logging re-enabled

Appendix

This appendix explains the specifications for the server and internal options. It also covers how to recycle the products.

A   Server Specifications

This section explains the specifications for the server.

table: Server Specifications - Diskless Type

Item		Functions and Specifications
Type		Diskless type
Model		PGUR2023AA
CPU	Standard	64-bit Intel® Processor Xeon™ 3E GHz / 2MB
	With the conversion kit	64-bit Intel® Processor Xeon™ 3.20E GHz / 2MB 64-bit Intel® Processor Xeon™ 3.60E GHz / 2MB
	Number of multiplication	1 (Max. 2)
Memory modules	Standard	1GB (512MB-DDR2 DIMM × 2)
	Adding size	1GB / 2GB / 4GB (installed in a pair)
	Maximum	16GB (8 slots, 1GB DIMM × 8)
Video RAM capacity		8MB
Graphics		VGA chip: ATI RAGE XL 648 × 480, 800 × 600, 1024 × 768, 1280 × 1024 Displayed colors: Differ depending on resolution and OS
CD-ROM drive bay		1 bay (optional) Types: 24× CD-ROM unit (IDE)
3.5-inch storage bay		2 bays
	Standard	Optional
	Adding size	73.4GB /146.8GB /300GB (10,000rpmm, Ultra320 SCSI) 73.4GB (15,000rpm, Ultra320 SCSI)
	Maximum	300GB × 2 = 600GB
Disk array		Standard (onboard SCSI array controller)
Expansion slots		PCI-X × 2 64-bit/133MHz × 1 (PCI-X, Full-Height, Half-length/LowProfile), 64-bit/66MHz × 1 (LowProfile)
Floppy disk drive		3.5 inch (2 mode 1.44MB/720KB) (Standard)
SCSI interface		Ultra320 SCSI × 1 (standard feature of the baseboard)
Network		LAN (1000BASE-T / 100BASE-TX / 10BASE-T) × 2 (standard feature of the baseboard)
Interface		LAN × 2, serial × 1, keyboard, mouse, monitor, USB × 3
Keyboard and Mouse		Option
Dimension (mm)		Width 430 (482) × Depth 710 (770) × Height 43.6 (1U unit) Values in parentheses are dimensions including projections.
Weight		Max. 19kg
Internal clock precision		± 2 - 3 minutes/month
Power consumption		Max. 500W/1800kJ/h
Power		100V-240V AC (50/60Hz) / bipolar ground type
Power supply unit		Standard: 1, Max.: 2 (when the redundancy option is installed)
Fan		15 (CPU fan × 10, power supply fan × 4, system fan × 1) Only CPU/power supply fans are redundant.
OS		Windows Server 2003, Standard Edition / Windows Server 2003, Enterprise Edition / Windows 2000 Server / Windows 2000 Advanced Server / Red Hat Enterprise Linux AS / Red Hat Enterprise Linux ES

The specifications for the server are subject to change for the purpose of improvement without prior notice.

B Specifications for Internal Options

This section explains the specifications for internal options for the server.
When you have bought a internal option as a standard option, check that the
package contains the following items before use. Should it happen that items are
missing, contact an office listed in the "Contact Information" of the "Start Guide".

B.1 CPU Specifications

■ Package

- CPU (1)
- Heat sink (1)

■ Specifications

table: CPU Specifications

Item	Functions and Specifications		
Product name	Processor Xeon™ 3.0GHz / 2MB	Processor Xeon™ 3.2GHz / 2MB	Processor Xeon™ 3.6GHz / 2MB
Model	PG-FG242	PG-FG243	PG-FG244
Clock frequency	3.0GHz	3.2GHz	3.6GHz
Internal secondary cache size	2MB	2MB	2MB

B.2 Memory Specifications

■ Package

- DIMM (2)

■ Specifications

table: Memory Specifications

Item	Functions and Specifications		
Product name	Memory Module-1GB	Memory Module-2GB	Memory Module-4GB
Model	PG-RM1BC	PG-RM2BC	PG-RM4BC
Modules	512MB-DDR2 DIMM × 2	1GB-DDR2 DIMM × 2	2GB-DDR2 DIMM × 2
Capacity	1GB	2GB	4GB
Clock frequency	400MHz		
Number of pins	240		

B.3   Internal CD-ROM Drive Unit Specifications

■ Package

- CD-ROM ATAPI (1)

■ Specifications

table: Internal CD-ROM Drive Unit Specifications

Item	Functions and Specifications
Model	PG-CD321
Interface	IDE (ATAPI)
Media	CD-ROM (12cm)
Format	CD-ROM
Reading mechanism	Optical pickup using a laser diode
Data transfer speed	Max. 3,600KB/sec (24× on the outside to 10× on the inside)
Access time	114msec (average)
Disk loading mechanism	Manual tray loading
Disk clamp mechanism	Ball clamp
Dimension (drive only)	128.4 × 129.9 × 13.2mm (W × D × H)
Weight (excluding a medium)	About 170g

B.4   Internal Hard Disk Unit Specifications

■ Package

- Internal hard disk unit (1)

■ Specifications

table: Internal Hard Disk Unit Specifications

Item	Functions and Specifications			
Model	PG-HDH71K	PG-HDH41K	PG-HDH31K	PG-HDH75K
Interface	Ultra320 SCSI			
Storage media	3.5-inch hard disk			
Memory capacity *1	73.4GB	146.8GB	300GB	73.4GB
Maximum data transfer speed	320MB/s (Ultra320 Wide)			
Average latency speed	2.99ms			2.00ms
Rpm	10,000rpm			15,000rpm
Energy consumption efficiency based on the Law Regarding the Rationalization of Energy Use *2	0.07 (B class)	0.05 (C class)	0.03 (C class)	0.16 (F class)
Dimension (W x D x H)	101.6 × 146.0 × 25.4 (mm)			
Weight *3	0.75kg			0.8kg

*1: The value indicates memory capacity of the formatted hard disk (1GB = 1000^3 bytes).
*2: The value indicates power consumption per 1GB.
*3: A Hot plug carrier is not included.

B.5 Power Cord Selection

The power cord for this unit has been packed separately and has been selected according to the country of destination. It must be used to prevent electric shock. Use the following guidelines if it is necessary to replace the original cord set.

The female receptacle of the cord set must meet CEE-22 requirements (see Figure).
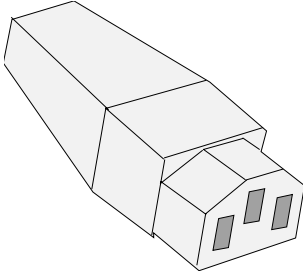
■ For the United States and Canada

Use a UL listed and CSA labeled cord set consisting of a three conductor cord with a maximum length of 15 feet.

For units which stand on a desk or table, type SVT or SJT cord sets should be used.

For units which stand on the floor, only SJT type cord sets should be used.

The cord set must be selected according to the current rating for your unit.

Please consult the table below for the selection criteria for power cords used in the United States and Canada.

table: Selection Criteria for Power Cords Used in the United States and Canada

Cord Type	Size of Conductors in Cord	Maximum Current Rating of Unit
SJT	18 AWG 16 AWG 14 AWG	10 Amps 12 Amps 12 Amps
SVT	18 AWG 17 AWG	10 Amps 12 Amps
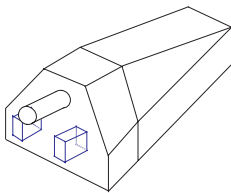
• Parallel
For units set at 115 V:
use a parallel blade, grounding type
attachment plug rated 15 A, 125 V.
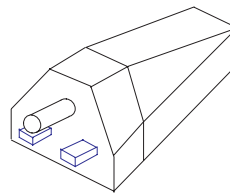
• Tandem
For units set at 230 V:
use a tandem blade, grounding type
attachment plug rated 15 A, 250 V.

● For units set at 230 V (outside of the United States and Canada):

Use a cord set consisting of a minimum AWG according to the table above and a grounding type attachment plug rated 15 A, 250 V. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked HAR.

■ For the United Kingdom

Should the plug on the flexible cord not be of the type for your socket outlets, do not use an adapter but remove the plug from the cord and discard. Carefully prepare the end of the supply cord and fit a suitable plug.

⚠CAUTION ⚠ • This appliance must be earthed.

🔍POINT

▶ The wires in this mains lead are colored in accordance with the following code.
- Green and Yellow: Earth
- Blue: Neutral
- Brown: Live

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.

- The wire which is colored Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or colored Green or Green and Yellow.
- The wire which is colored Blue must be connected to the terminal which is marked with the letter N or colored Black.
- The wire which is colored Brown must be connected to the terminal which is marked with the letter L or colored Red.

C Remote Control Function and Console Redirection

A

When a personal computer (PC) is connected to the serial port of this server with a cross cable, the server can be turned on/off or reset from the PC via RS-232C (remote control function). Console redirection can be performed in the same manner.

The remote control and console redirection functions can be switched between each other.
Perform the following procedures to use these two functions.

- Connecting the server to a PC
- Setting the server using the Remote Control Utility

IMPORTANT

▶ To use the reset function via RS-232C, the terminal software on the PC must have the same communication speed and flow control mode settings as those on the Remote Control Utility menu.

▶ When both remote control function and BIOS console redirection are used, perform the following procedures in the BIOS Setup Utility.

- On the [Peripheral Configuration] submenu of the [Advanced] menu, change [Serial Multiplexer] to [Shared].
  →"8.2.6 Peripheral Configuration Submenu" (pg.216)
- On the [Console Redirection] submenu of the [Server] menu, change [Console Redirect] to [Enabled].
  →"8.2.16 Console Redirection Submenu" (pg.230)

C.1   Connecting the Server to a PC

Connect the server to a PC using a cross cable.

The server (rear)

Serial port ⌶○⌶○⌶

Cross cable

Personal computer

Serial port ⌶○⌶○⌶
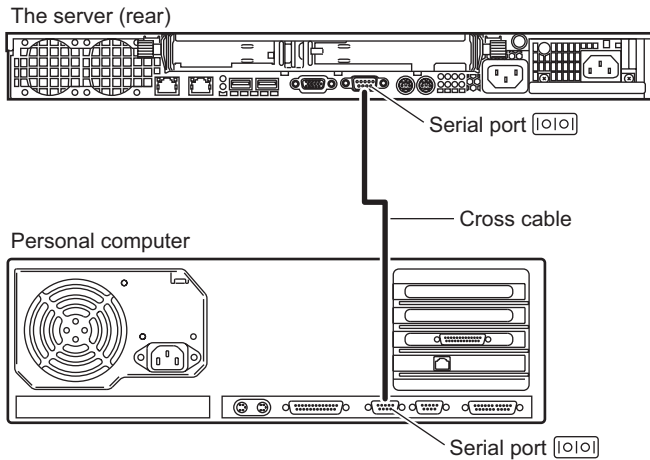
IMPORTANT

▸ In the BIOS Setup Utility, perform the following setting.
  • On the [Peripheral Configuration] submenu of the [Advanced] menu, change [Serial Multiplexer] to
    [BMC].
    →"8.2.6 Peripheral Configuration Submenu" (pg.216)

C.2   Operating the Remote Control Utility

The following explains how to operate the Remote Control Utility

■ Connection

1 Connect the serial port to the management terminal using an RS-232C cross
cable.

2 Establish connection using the terminal software.

■ Operation on the Server

Perform the following operations in the terminal software on the management terminal.

1 Establish connection using the terminal software and press the [Enter] key.
The following message appears.

```
Login>
```

2 Enter the following command.

   Remote [Enter]

The following message appears.

```
Password>
```

3 Enter the following command.

   Remote [Enter]

The following menu appears.

```
*******************************************
Welcome to System RX200 S2
BMC FW: *.**    SDRR: *.**
State: Off (na = Currently not available)
*******************************************

    REMOTE MAINTENANCE MENU
   (1) Immediate Power Down
   (2) Immediate Reset
   (3) Graceful Power Down
   (4) Power Cycle
   (5) Power On
   (6) View System Eventlog (SEL)


   Enter selection or (0) to quit:
```

The "State" line in the message will show either of the following.

table: Messages in the Main Menu Window

Message	Status
On	The server is turned on.
Off	The server is turned off.

4 Use numeric keys to enter the desired menu number.

The table below shows the menu items and corresponding operations. Unavailable menu items are indicated with "na" in parentheses to the left of that item.

table: Menu Items and Operations

Menu	Operation	Operation after selecting the item
(1) Immediate Power Down	The server will be turned off.	When "Do you really want to do this? [y/n]" appears, enter the following command. y [Enter]
(2) Immediate Reset	The server will be restarted.	
(3) Graceful Power Down	The server will be turned off. When Windows is running, the server is turned off after the OS is shut down.	When "Do you really want to do this? [y/n]" appears, enter the following command. y [Enter] When Windows is running, "System shutdown due to <software command> in 60 second! Press Cancel to abort!" appears in the popup window. Select [OK].
(4) Power Cycle	The server will be restarted. When Windows is running, the server is restarted after the OS is shut down.	

A

Appendix

table: Menu Items and Operations

Menu	Operation	Operation after selecting the item
(5) Power On	The server will be turned on.	-
(6) View System Event log (SEL)	The event log will be displayed.	-
(0)	-	The menu closes.

C.3   Switching between Functions

■ Switching from Console Redirection to the Remote Control Function

1　In the terminal software executing console redirection, press the [Esc] key and press the [Shift] + [8] keys.

Console redirection switches to the remote control function.

For operation of the Remote Control Utility, refer to "Appendix C.2 Operating the Remote Control Utility" (→pg.298).

■ Switching from the Remote Control Function to Console Redirection

1　Exit the Remote Control Utility.

Select [0] from the menu of the Remote Control Utility.

The following message appears.

```
Login>
```

2　Press the [Enter] key, then the [Shift] + [Q] keys.

The terminal software window changes to the console redirection window.

D Recycling

This section explains how to recycle this server.

■ Disposing of the Server

When scrapping this server, contact an office listed in the "Contact Information" of the "Start Guide". This server must be disposed of as industrial waste.

Furthermore, if the server is disposed of as it is, someone else may gain access to the information contained on the hard disks. It is therefore recommended that all drives be formatted before disposal.

However, just formatting or deleting files may not avoid the risk that the data is restored and used for wrongful purposes. If confidential or private information is saved, in order to make it impossible to be restored, it is recommended to use third-party data wiping tools.

■ Disposing of Used-up Batteries

Used-up batteries must be disposed of as industrial waste and therefore require special processing. Let a licensed industrial waste disposal company take care of disposing them.

■ Disposing of Liquid Crystal Displays

Liquid crystal displays must be disposed of as industrial waste and therefore require special processing. Let a licensed industrial waste disposal company take care of disposing them.

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S

PRIMERGY RX200 S2

User's Guide
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